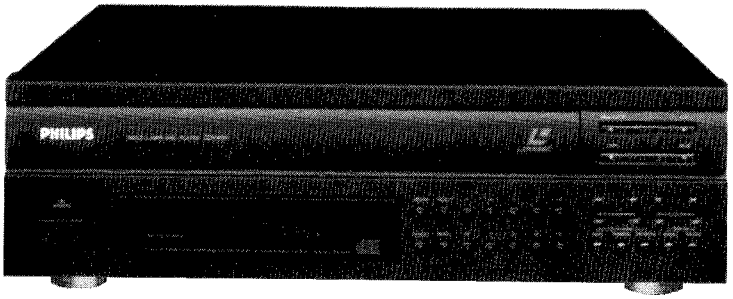
Multi laser disc player LDP400/00B/19B

Service
Service
Service



45 607A

ServiceManual

LASER DISC

COMPACT disc DIGITAL AUDIO

- The LDP400/PAL is an advanced Multi Laser Disc player that accepts laser optical discs of all sizes, from 8 cm (3 inch) up to 30 cm (12 inch) with no need of an adapter. Disc type and size detection are fully automatic.
  - Plays all laser discs, CD video and CD discs
  - Full remote control operation.
  - 20 track or chapter programming.
  - Random play mode.
  - Multi-function FTD.
  - Edit function.
- Introduction date B periode 1991
- The optical pick-up assy is operating according the 3-beam tracking principle.
  Type number: KHS-130A
  Codenumber: 4922 691 30237
- Remote control: RC400E CDV code number: 4822 218 10381

(S)
Varning!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betakta ej strålen.

(DK)
Advarsel!
Usynlig laserstråling ved abning når sikkerhedsafbrydere er une af funktion. Undgå udsaettelse for stråling.

(SF)
Varoitus!
Laite sisältaa laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilyä.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

CLASS 1
LASER PRODUCT
3122 110 03420

"Pour votre sécurité, ces documents soivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

Published by Service & Support Inter Active Media systems Printed in The Netherlands 4822 725 23301

PHILIPS

PHILIPS

3.1 SAFETY INSTRUCTIONS

- Safety regulations demand that the set be restored to its original condition and that components identical with the original types be used.
  Safety components are marked by the symbol ⚠.
- **ESD**

  All IC's and many other semi-conductors are susceptible to electrostatic discharges (ESD).
  Careless handling during repair can reduce life drastically.
  When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
  Keep components and tools also at this potential.
  For detailed information see "Handling ESD-sensitive components".
- A set to be repaired should always be connected to the mains via a suitable isolating transformer.
- never replace any modules or any other parts while the set is switched on.
- Use plastic instead of metal alignment tools. This in order to prelude short-circuit or to prevent a specific circuit form being rendered unstable.

3.2 SERVICING OF SMDs (Surface Mounted Devices)

3.2.1 General cautions on handling and storage

a. Oxidation on the SMDs terminals results in poor soldering. Do not handle SMDs with bare hand.
b. Avoid for storage places that are sensitive to oxidation such as places with sulfur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity.
   As a result the capacitance or resistance value of the SMDs may be affected.
c. Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress.
   Never rub or scrape chip components as this may cause the value of the component to change. Similary, do not slide the circuit board across any surface.

3.2.2 Removal of SMDs

a. Heat the solder (for 2-3 seconds) at each terminal of the chip. Small components can, by means of litz wire and a limited horizontal force, be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1a) or
b. While holding the SMD with a pair of tweezers take it off gently using th soldering iron's heat applied to each terminal (see Fig. 1b).
c. Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1c).

3.2.2.1 Caution on removal:

a. When handling the soldering iron, use suitable pressure and be careful.
b. When removing the chip, do not use undue force with the pair of tweezers.
c. The soldering iron to be used (approx. 30 W), must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
d The chip, once removed, must **never** be used again.

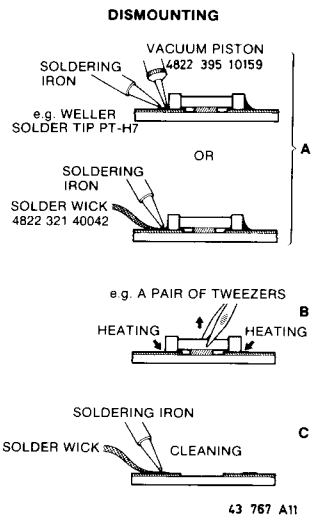


Fig. 1

3.2.3 Attachment of SMDs

a. Locate the SMD on the solder lands by means of tweezers and solder the component at one side. Ensure that the component is positioned well on the solder lands (see Fig. 2a).
b. Next complete te soldering of the terminals of the component (see Fig. 2b).

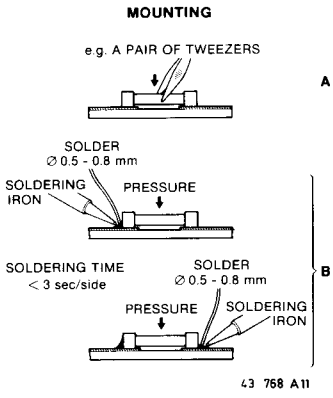


Fig. 2

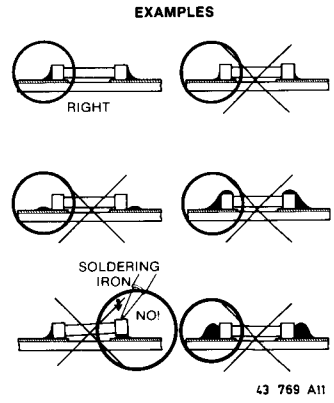


Fig. 3

3.2.3.1 Caution on attachment:

a. When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering must be as quick as possible; care must be taken to avoid damage to the terminals and the body itself.
b. Keep the SMD's body in contact with the printed board when soldering.
c. The soldering iron to be used (approx. 30 W) must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
d. Soldering should not be done outside the solder land.
e. Soldering flux (of rosin) may be used but should not be acidic.
f. After soldering, let the SMD cool down gradually at room temperature.
g. The quantity of solder must be proportional with the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

3.3 HANDLING ESD-SENSITIVE COMPONENTS

3.3.1 Personal safety

The testing, handling and replacing of ESD-sensitve components requires special attention for personal safety. A person dealing with ESD-sensitive components should, normally speaking, be connected via a resistance to the same potential as the chassis of the set to protect him against direct contact with the supply voltage.
This resistance is often applied in the connection lead of wrist wraps. If necessary, make use of an isolating transformer.

3.3.2 Storage and transport

Transport and store the circuits and PCBs in their original packages.
As an alternative to the original package one may use a conductive material or special IC package which short-circuits all the pins of the component with one another.
Always discharge the package before opening it.

3.3.3 Testing or handling

Work on a conductive surface when testing loose circuits and components or when transferring components and circuits from one package to another.
Use a conductive wrist wrap with lead to make an electrical connection between the conductive surface and yourself via a resistance in the connection lead of the wrist wrap.
Connect equipment and tools also with this conductive surface.
Do not connect any signals to inputs as long as the power supply of the set to be tested is off.
All the inputs that are not used should be connected either to ground or to the supply voltage. When testing, do not use any freon sprays for under-cooling of sensitive components.

3.3.4 Mounting ESD-sensitive components

Mount ESD-sensitive components only after all other components have been mounted.
Make sure that the components themselves, the metal parts of the PCB, mounting equipment and mounting operator are at the same potential level as the chassis of the set.
If it is impossible to ground the PCB, the mounting operator should pick the PCB up before bringing it into contact with the components to be replaced.

3.3.5 Soldering

Soldering iron tips, also those of low-voltage soldering stations, should be kept at the same potential as the components and the PCB.
It is better to use solder-removing braid than solder suckers.

3.3.6 Electrostatic charges

One should stick to the precautionary measures also after the ESD-sensitive components have been mounted on the PCB. Until the sub-PCBs have been incorporated into a complete system on which the correct supply voltages are connected, the PCB is nothing more than an extension of the conductors of the components on this PCB. To prevent electrostatic discharges from passing to the components via the terminals, we recommend that you apply conductive clips or conductive tape on the terminals of the PCB.

3.3.7 Transients (switch-on phenomena)

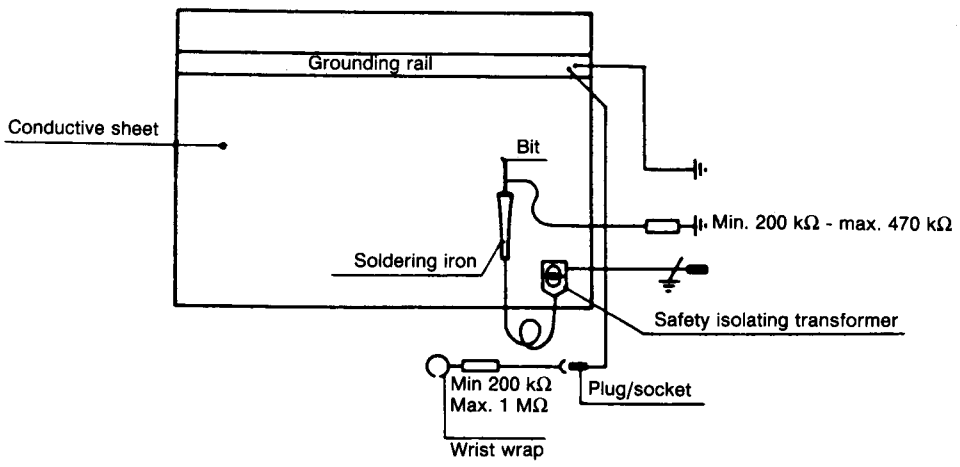
To prevent permanent damages as a result of switch-on phenomena, no ESD-sensitive components, or PCBs populated with these components, should be inserted in or removed from test-sockets or systems with the supply voltage on.
Prevent switching peeks on the mains as a consequence of switching electric equipment, relay and DC lines on and off.

3.3.8 Working environment

The work bench for the service technician should look like the one shown in the figure.

3.3.9 Replacement of the Flat Pack IC's

For replacing a component see Fig. 6 Dismounting and Mounting. Also a number of precautions and examples is given.
When replacing a flat pack, rosin flux applied to the device leads will ensure a good soldered joint.
Since rosin flux, when not properly heated by the soldering process, is sticky, it will attract dust which will result in component degeneration over a period of time.
The removal of excess flux with a cleaner will not solve this problem because the flux is then even spread over a greater area by the cleaner. Drying of the flux can be accomplished by blowing the area with a common hair dryer for 1 or 2 minutes at a distance of approx. 10 centimeters.

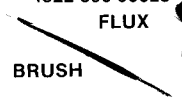


Special attention should be paid in regions having a dry atmosphere and when the floor is covered with a nylon carpet or such.

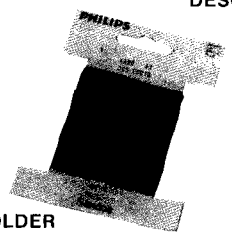
TOOLS TO BE USED

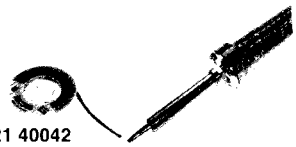

ANTISTATIC MAT


HAIR DRYER


4822 390 50025
FLUX

FLUX
BRUSH


SOLDER
ø0,5-0,8 MM


4822 321 40042
DESOLDER BRAID
SOLDERING IRON
WELLER TCP 50

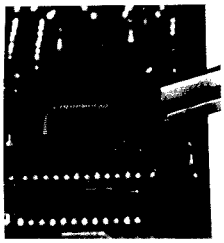

SOLDER TIP
WELLER PT-CC7
4822 310 50081

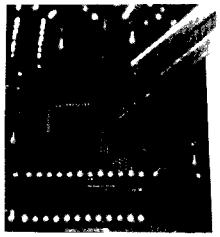

KNIFE

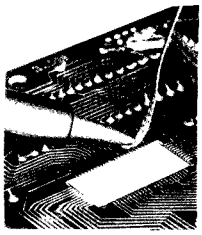

MAGNIFYING GLASS

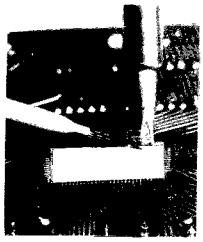

METAL BRUSH

DISMOUNTING

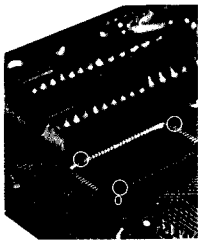

CUTTING
THE LEADS

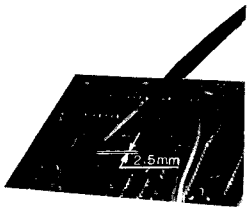

WRONG
TRACKS WILL
BE DAMAGED


CLEANING
THE TRACKS

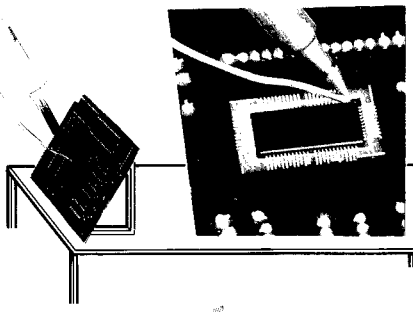


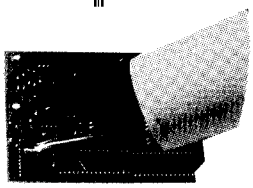
MOUNTING

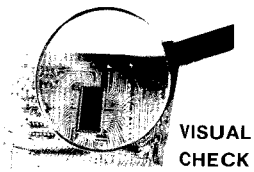

FIXING IC
AT THE CORNERS



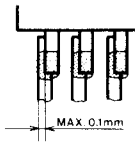
APPLYING FLUX

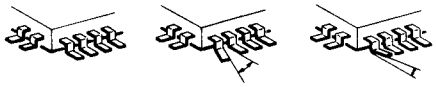

SOLDERING:
SPEED
1 CM IN 5 SEC.


DRYING

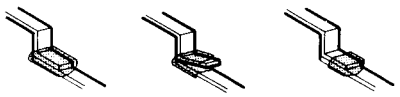

VISUAL
CHECK

ALIGNING THE LEADS




RIGHT
WRONG
WRONG

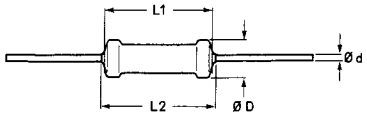
SOLDERING


RIGHT
WRONG
WRONG

3.4 CODENUMBERS FOR STANDARDIZED RESISTORS

Unless otherwise specified, all defective resistors in the circuits of the set can be replaced by standardizes types, mentioned in this chapter.

VR25, VR37 high-ohmic/high -voltage resistors



type	D_{max}	L_1 max	L_2 max	d
VR25	2,5	6,5	7,5	0,6

type	D_{max}	L_1 max	L_2 max	d
VR37	3.7	9.0	10.0	0.7

Range VR25 : 100 KΩ to 22 MΩ
Range VR37 : 100 KΩ to 33 MΩ

Composition of the service number for the VR25 and VR37
Main subgroup: 4822 053 20... and 4822 053 21...

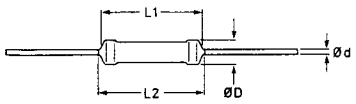
The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

4 for R = 100K to 910 KΩ
5 for R = 1M to 9.1 MΩ
6 for R = or > 10M

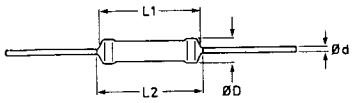
Example's:
The serv.nbr. for a VR25 resistor of 100 KΩ
is 4822 053 20104
The serv.nbr. for a VR37 resistor of 33 MΩ
is 4822 053 21336

PR01, PR02 and PR03 power metal film resistors

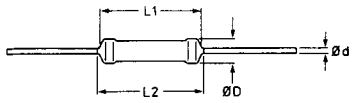
ϕD_{max}	L1	L_{2max}	ϕd
2.5	6.5	8.0	0.6



ϕD_{max}	L_{1max}	L_{2max}	ϕd
3.9	10	11	0.8



ϕD_{max}	L_{1max}	L_{2max}	ϕd
5.2	16.7	17.9	0.8



Rated dissipation at T(amb) = 70 degrees :
PR01 = 1 Watt, PR02 = 2 Watt, PR03 = 3Watt

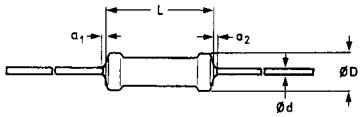
Composition of the service number for the PR01, PR02 and PR03
Main subgroup: 4822 053 10... ; 4822 053 11... and 4822 053 12...

The codenumber above is completed by inserting the first two figures (resistance code)followed by the multiplier.

8 for R= 1 to 9,1 Ω
9 for R= 10 to 91 Ω
1 for R= 100 to 910 Ω
2 for R= 1 to 9,1 KΩ
3 for R= 10 to 91 KΩ
4 for R= 100 to 910 KΩ
5 for R= or > 1 MΩ

Example:
The serv.nbr. of a PR01 resistor of 47 Ω
is: 4822 053 10479
The serv.nbr. of a PR03 resistor of 1 MΩ
is: 4822 053 12105

NFR25 fusible resistors ⚠



D_{max}	L_{max}	d	$a_1 + a_2$
2.5	6.5	0.6	⩽1

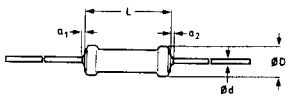
Composition of the service number for the NFR25
Main subgroup: 4822 052 10...

The codenumber above is completed by inserting the first two figures (resistance code)followed by the multiplier.

8 for R= 1 to 9,1 Ω
9 for R= 10 to 91 Ω
1 for R= 100 to 910 Ω
2 for R= 1 to 9,1 KΩ
3 for R= 10 to 91 KΩ

Example:
The service number of a resistor of 47 Ω
is: 4822 052 10479

NFR25H fusible resistors ⚠



$D_{max.}$	$L_{max.}$	d	$a_1 + a_2$
2,5	6,5	0,6	⩽1

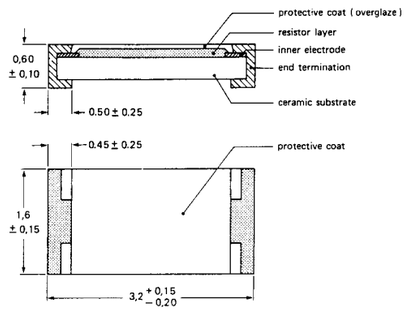
Composition of the service number for the NFR25H
Main subgroup: 4822 052 11...

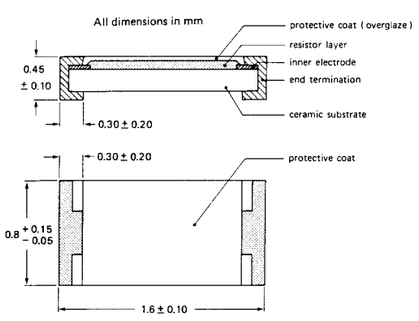
The codenumber above is completed by inserting the first two figures (resistance code)followed by the multiplier.

8 for R= 1 to 9,1 Ω
9 for R= 10 to 91 Ω
1 for R= 100 to 910 Ω
2 for R= 1 to 9,1 KΩ
3 for R= 10 to 91 KΩ

Example:
The service number of a resistor of 47 Ω
is: 4822 052 11479

RC-01, RC-11 AND RC-21 chip resistors





Absolute max. dissipation :
RC-01 : 0,25 W, RC-11 : 0,10 W, RC-21 :0,062 W.

Range: RC-01 0 Ω TO 10 MΩ
RC-11 0 Ω TO 10 MΩ
RC-21 0 Ω TO 6,8 MΩ

Composition of the service number for the RC-01,RC-11 and RC-21
Main subgroup: 4822 051 10... , 4822 051 20... and 4822 051 30...
The codenumber above is completed by inserting the first two figures (resistance code) followed by the multiplier.

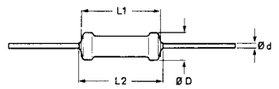
8 for R= 0 to 9.1 Ω
9 for R= 10 to 91 Ω
1 for R= 100 to 910 Ω
2 for R= 1 to 9.1 KΩ
3 for R= 10 to 91 KΩ
4 for R= 100 to 910 KΩ
5 for R= 1 to 9.1 MΩ
6 for R= or > 10 MΩ

Example's:
The serv.nbr. for a RC-01 resistor of

0 Ω is 4822 051 10008
The serv.nbr. for a RC-11 resistor of
0 Ω is 4822 051 20008
The serv.nbr. for a RC-21 resistor of
0 Ω is 4822 051 30008

The serv.nbr. for a RC-01 resistor of
10 Ω is 4822 051 10109
The serv.nbr. for a RC-11 resistor of
10 Ω is 4822 051 20109
The serv.nbr. for a RC-21 resistor of
10 Ω is 4822 051 30109

MRS16T metal film resistors with low-inductance



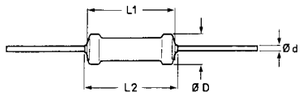
D	L	L2 max.	d
1,7 +0,2 −0,1	3,5 +0,2 −0,15	3,7	0,5 −0,04

Composition of the service number for the MRS16T
Main subgroup: 4822 050 1....
The codenumber above is completed by inserting the first three figures (resistance code)followed by the multiplier.

8 for R= 4,99 to 9,76 Ω
9 for R= 10 to 97,6 Ω
1 for R= 100 to 976 Ω
2 for R= 1 to 9,76 KΩ
3 for R= 10 to 97,6 KΩ
4 for R= 100 to 976 KΩ
5 for R= or > 1 MΩ

Example:
The service number of a resistor of 487 Ω is:
4822 050 14871

MRS25 metal film resistors (0,5%)



D	L1	L2 max	d
2,5	6,5	7,0	0,6 ± 0,03

Composition of the service number for the MRS25
Main subgroup: 4822 050 2....

The codenumber above is completed by inserting the first three figures (resistance code)followed by the multiplier.

8 for R= 1 to 9,76 Ω
9 for R= 10 to 97,6 Ω
1 for R= 100 to 976 Ω
2 for R= 1 to 9,76 KΩ
3 for R= 10 to 97,6 KΩ
4 for R= 100 to 976 KΩ
5 for R= 1 to 9,76 MΩ
6 for R= or > 10 MΩ

Example:
The service number of a resistor of 976 Ω is:
4822 050 29761

II. SPECIFICATIONS

• FORMAT

System (or Type):	Optical videodisc system complies with Philips specifications
Usable disc:	8 cm CD'' 20 Min.
	12 cm CD: 70 Min.
	CDV single: Video 6 Min.
	Audio 20 Min.
	30 cm LD (CLV) disc:
	60 Min./side
	30 cm LD (CAV) disc:
	30 Min./side
	20 cm LD (CLV) disc:
	20 Min./side
	20 cm LD (CAV) disc:

• CONNECTIONS:

Video:	
ANT IN:	UHF input
VHF Output	For PAL TV receiver (75 ohms, unbalanced)
Video Output:	1 Vp-p (75-ohms load, sync. negative) cinch connector
Audio:	
Analog output:	200 mVeff (1 kHz, 40%),
Digital signal characteristics	
Frequency response:	3 Hz to 20 kHz ±0.5 dB
Signal-to-noise ratio:	97 dB
Dynamic range:	94 dB
Distortion rate:	0.003% (1 kHz, –20 dB)

• GENERAL

Power requirements:	220 V/240 V AC, 50 Hz
Power consumption:	39 W
Weight:	12 kg
Dimensions (W x H x D):	420 x 130 x 425 mm
Operational temperature:	+5°C to 35°C.
Humidity range:	5 to 90% (No condensation)
Safety requirements	IEC 65 (BS415 for U.K.)

• ACCESSORIES

Remote control Transmitter

• LASER DIODE

Laser type:	Semi conductor AL GA AS
Wave length:	780 nm
Output power:	3,3 mW typical

• OTHERS

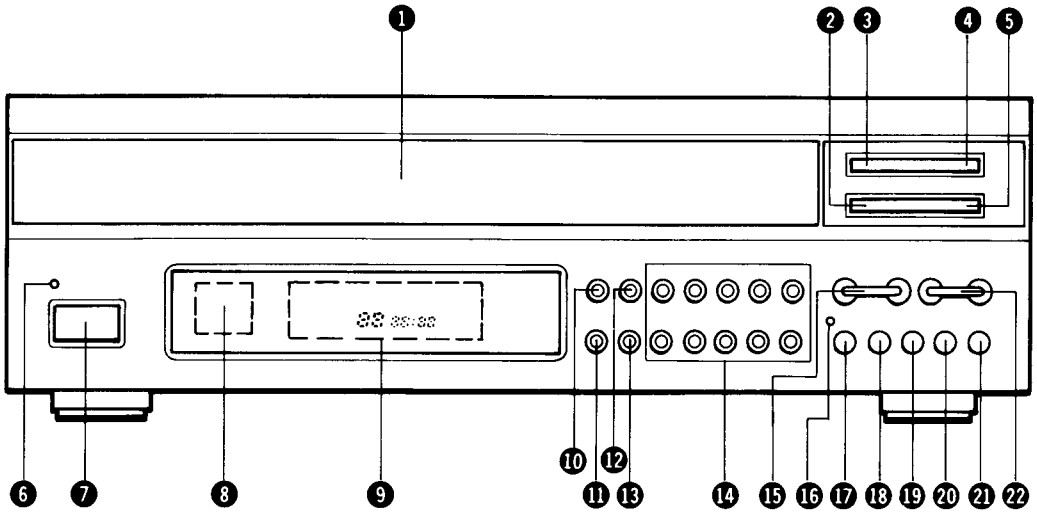
Auto audio digital output:	When playing discs having a digitally-recorded audio signal, audio reproduction circuit is automatically changed to the audio digital circuit.

Specifications and design subject to change without notice.

The right is reserved to change data if necessary

This CD Video player complies with radio interference requirements as laid down in EC regulations.

III. CONNECTION AND CONTROLS



GLOSSARY OF TERMS

CAV	Constant Angular Velocity
CLV	Constant Linear Velocity
CDV	Compact Disc Video
CD	Compact Disc
LD	Laser Disc
TOC	Table of Contents
FTD	Fluorescent Tube Display
OSD	On-Screen Display

❶ DISC TRAY
Place a disc on the tray.
The tray slides out by pressing the OPEN/CLOSE (▲) button on the player or by pressing the OPEN/CLOSE on the remote control transmitter.

❷ STOP (■) BUTTON
When this button is pressed during play, the disc rotation stops.
In the Stop mode, when more than 10 minutes have elapsed, the player enters the Stand-By mode automatically.

❸ OPEN/CLOSE (▲) BUTTON
Press this button to open and close the disc tray.
When this button is pressed with the disc placed on the tray, the disc tray closes, and the TOTAL TRACK/CHAP and TOTAL TIME appear on the display of the player while the TOTAL TRACK/CHAP, TOTAL TIME and music calendar are displayed on the monitor screen, then the player enters the stop mode.
However, if an LD with no TOC is loaded, playback will start automatically.
When this button is pressed during play, disc rotation stops and the disc tray will open.
When this botton is pressed with the disc tray open, the disc tray closes.
While the disc tray is the opening or closing the CD, CDV or LD indicator flashes.

❹ PLAY (►) BUTTON
When this button is pressed after placing a disc on the disc tray, the disc slides into the player and play starts.
- Pressing this button in Stop mode starts play.
- Pressing this button during play moves the play position to the beginning of the chapter or track being played, and re-starts play from there.
- Pressing this button can also start program play.
- Pressing this button during playback in a mode other than normal Play mode causes normal Play mode to resume.

❺ PAUSE (▮▮) BUTTON
When this button is pressed during Play mode, play is stopped temporarily. To resume play, press the PLAY button, or the PAUSE button again.

❻ STANDBY INDICATOR
When the AC cord is plugged into an AC outlet, the player enters the Stand-By mode (Normal status: If the disc tray is open, it will be closed.), and this indicator lights.
When the STANDBY button is pressed, the indicator lights up to show that the unit is in the stand-by mode. It will go out when the power is turned ON.

❼ ON/STANDBY BUTTON
When this button is pressed, the player enters the Stand-By mode and the STANDBY indicator lights up. (All the data stored in the memory are then erased.)
Pressing this button and any of the OPEN/CLOSE (▲), PLAY (►), STOP (■), PAUSE (▮▮), SKIP (⏮, ⏭) buttons turns the power on.

Note: In the Stand-By mode, no operations other than the above are possible.

❽ REMOTE SENSOR
This is the receiver for the signal transmitted from the remote control transmitter.

❾ MULTI-FUNCTION DISPLAY

❿ RECALL BUTTON
Press this button to check the programmed contents.

⓫ CANCEL BUTTON
Use this button in the following cases.
- To cancel repeat play.
- To correct an entry made using the numeric buttons (only during programming). When this button is pressed again, the program mode will be cancelled.
- To cancel Programmed play.
- To cancel random play.
- To cancel A-B repeat.

⓬ SELECT BUTTON (LD)
Press this button to recall the specific position you want to view and/or listen to (search operation).
With a LD (CAV) disc, pressing this button activates frame number searh mode. With a LD (CLV) extended play disc, pressing this button activates time number search mode.

⓭ ENTER BUTTON
Press this button to enter a program for programmed play.

⓮ NUMBERED BUTTONS
Use these buttons when searching or programming chapters or tracks.

⓯ SKIP (⏮ / ⏭) BUTTONS
Press one of these buttons to skip to the beginning of a chapter or track.

⏭ : When this button is pressed during Play mode, the beginning of the next chapter or track is detected. When it is kept pressed, the chapter or track number is advanced continuously.

⏮ : When this button is pressed during Play mode, the beginning of the current chapter or track is detected.
When it is kept pressed, the chapter or track number is reversed continuously.

⓰ EDIT INDICATOR
Lights up when the EDIT button is pressed.
It lights up during EDIT play.

⓱ EDIT BUTTON
With this function, an interval of four seconds will be left between tracks during play. It is convenient when recording from a disc to tape.
Press this button when entering the edit program.

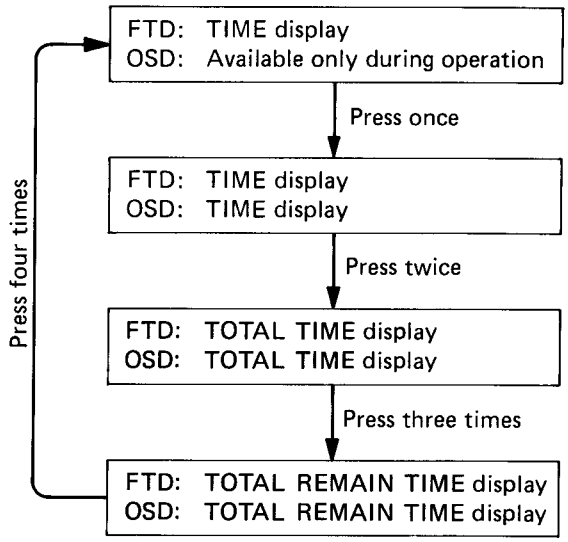
⓲ RANDOM BUTTON
Press this button to start random play.
(Effective only for CD, CDV-Single, and LD disc with TOC)

⓳ PROGRAM BUTTON
This button is used to program the desired chapters or tracks in a desired order (programmed play).

⑳ DISPLAY MODE BUTTON

This button is used to changed the contents of the Fluorescent Tube Display (FTD) on the player and On-Screen Display (OSD) on the monitor screen.

Note: This function is effective only when Display ON/OFF is ON (and both FTD and OSD are activated).

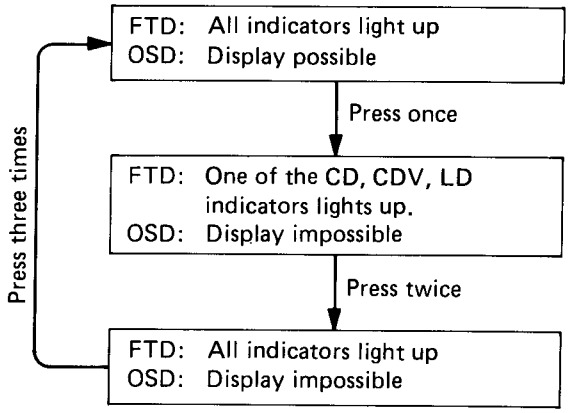


Displayed contents differ depending on the disc being played.

– Not with CD-audio

㉑ DISPLAY ON/OFF BUTTON

This button is used to switch off the Fluorescent Tube Display (FTD) on the player or the On-Screen Display (OSD) on the TV.
Display status which depends on the setting of the display ON/OFF button is shown below.



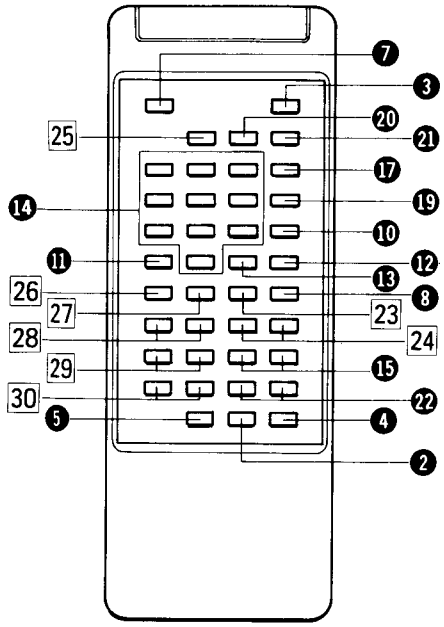
㉒ SEARCH BUTTONS

When one of these buttons is pressed and held down during Play mode, the player searches forward or backward.

▶▶ : Forward search.
◀◀ : Backward search.

The search speed varies in two steps. It is low for the first two seconds after the button is pressed, and then becomes high.

Remote control



Any other button than given below serves the same operation as does its corresponding one of a CDV player.

23 AMS (Auto Music Scan) BUTTON

Press this button to start AMS play, or when entering the program for AMS play.

25 I-II BUTTON (LD)

If you wish to listen to only one audio channel, as in the case of a bilingual disc, press the I-II button to select the desired channel. Each press switches the selected channels as follows: 1/L → 2/R → 1/L and 2/R (stereo) → 1/L → ....

27 A-B BUTTON

Use this button for a block repeat between points A and B. To stop the process, press the Cancel button.

28 STEP (◄II IIP►) BUTTONS (CAV - Constant Angular Velocity)

Press one of these buttons to freeze the picture. After this, each press of a button moves the still frame step by step in either direction.

To cancel the still picture, press the PLAY (►) button.

29 SPEED PLAY (REV./FWD) BUTTONS [CAV]

With these buttons you can determine the direction of play. You must then press on the REV./FWD keys to raise of lower the default speed of 1/4. This ranges from three times the normal speed to one frame per three seconds.

30 SPEED (▲/▼) SET BUTTONS [CAV]

When the power is switched ON the initial speed is 1/4 the normal speed.

With these buttons the speed can be raised or lowered in eight steps after first pressing one of the SPEED REV/FWD buttons.

IV. DISASSEMBLY PROCEDURES

A. TRAY ASSEMBLY REPLACEMENT PROCEDURES

DISMANTLING THE TRAY ASSEMBLY

1. Remove the top cover by extracting screws (C).
2. Remove the RGB assembly (PG06) together with the insulator by removing the screws (D). (Fig. 2-1)
3. Remove the screws (A) retaining the front panel, and stretch the two connective cords for the FRONT assembly. Place the front panel with the control keys facing upward in a position which will not contact the disc tray even when it comes out open. (Figs. 1, 2-1)
4. Remove the top front brace by removing the screws (B). (Fig. 1)
5. Insert the power plug into a power outlet, press the OPEN button to open the disc tray, then unplug the power plug.

Note:
- *If tray assembly will not open, then perform the MANUAL TRAY OPENING PROCEDURES.*
- *When disconnecting the connector (JF01) on the front assembly (PF06), draw out this connector undoing the stopper by the straight-edge screwdriver inserted as indicated by arrows in Fig. 2-2.*

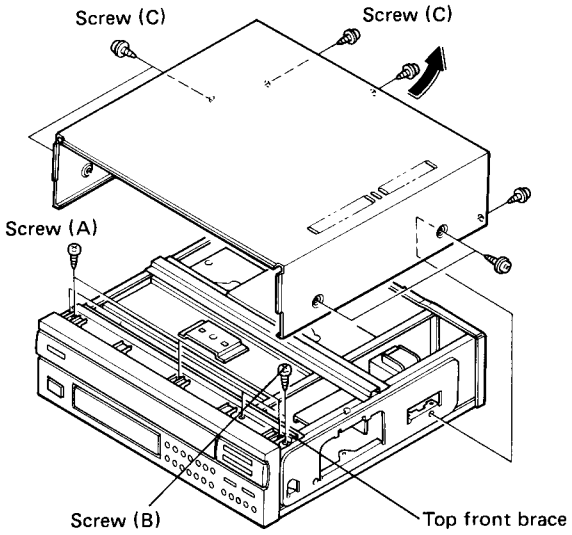


Fig. 1

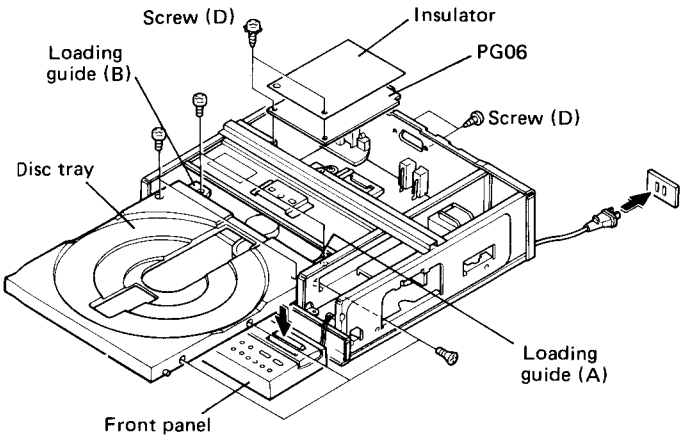


Fig. 2-1

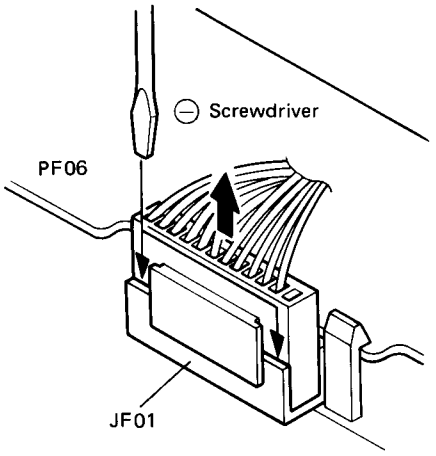


Fig. 2-2

6. Remove the four screws mounting the loading guides (A) and (B). (Figs. 2-1 and 2-3)
   However, in this situation, the one screw mounting the loading guide (A) still remains under the disc tray. Therefore, the disc tray cannot be detached yet.
7. Push in the disc tray about 7 cm from its fully drawn-out status, then remove the three screws on its right side. In this case, insert a screwdriver from the right side of the unit for removal of the one screw located at the depth. (Figs. 2-1 and 2-3)
8. Detach the disc tray and the loading guide (B) (left one).
9. Remove the rest one screw mounting the loading guide (A) (right one). (Fig. 3)
   This one screw needs no reinstallation.

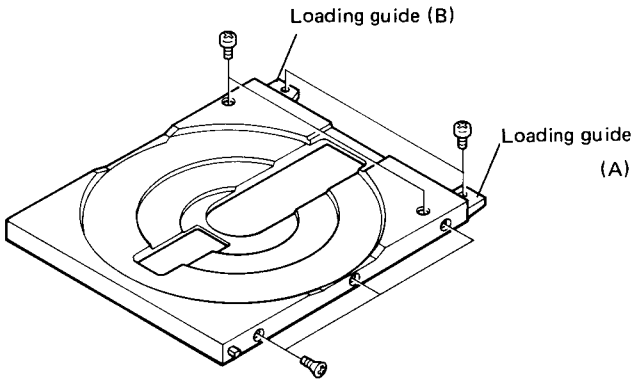


Fig. 2-3

10. Install the loading shaft, loading guide (A), shaft holder and cushion to the disc tray securely by three flat head screws. (Fig. 4-1)
11. Install the loading gear ass'y and loading guide (B) to the disc tray. At this time, set the shaft of the loading gear ass'y into parallelism with the tray end. (Fig. 4-2) Draw care not to let the loading guide (B) off, which is not fixed to the disc tray.

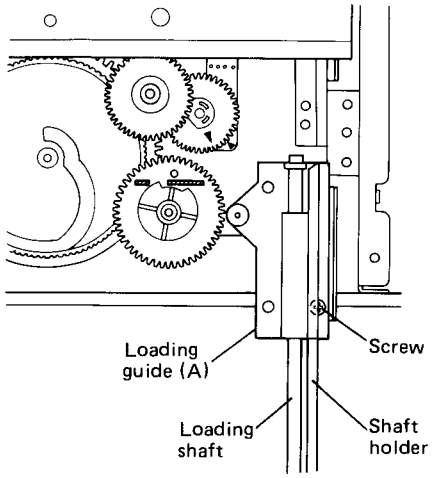


Fig. 3

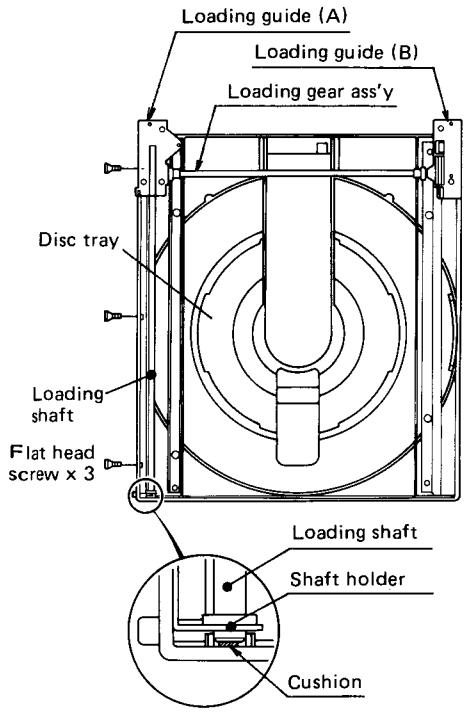


Fig. 4-1

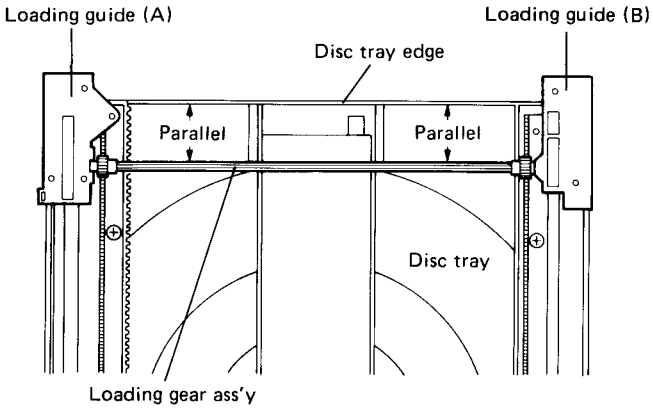


Fig. 4-2

B. MANUAL TRAY OPENING PROCEDURES

1. Rmove the bottom plate. (Fig. 5)
2. Remove the fixing screws of the main assembly (P506), the fixing screws of the ROM assembly (PU06) bracket and the terminal fixing screws of the rear panel. (Fig. 5)

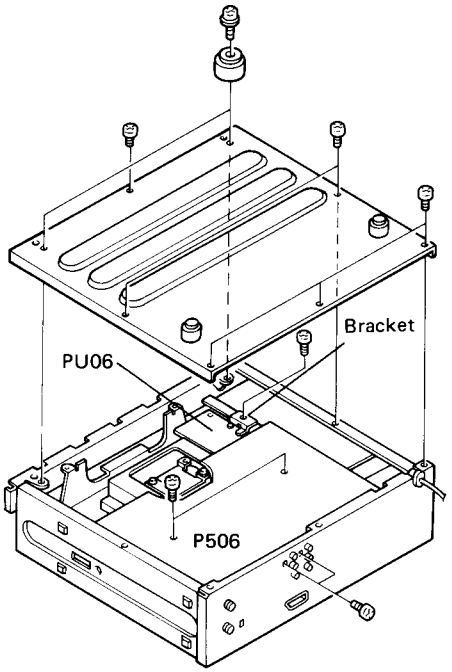


Fig. 5

3. Turn the gear (B) clockwise by inserting your finger through the rectangular hole on the side of the loading motor; the turntable will move down and the disc tray will come out open. (Fig. 6) When the disc tray comes out a little, it can be opened with your hand.

Note: Be careful not to deform the gear teeth, for this will cause abnormal noise during operation.

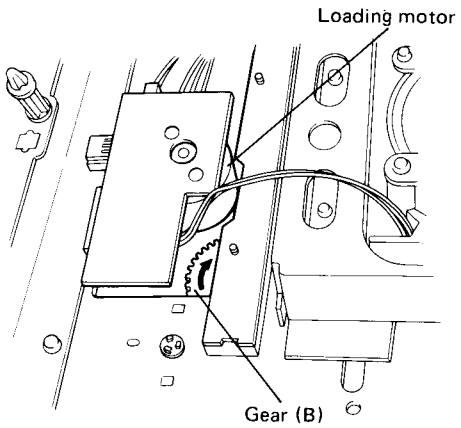


Fig. 6

C. ATTACHING THE TRAY ASSEMBLY

1. Turn the control cam clockwise until it stops. (Fig. 7)
2. Check that the marks (A) and the marks (B) are aligned respectively.
   - If the marks (A) are not aligned between each other, refer to "ATTACHING THE CONTROL CAM" (page 11).
   - If the marks (B) are not aligned between each other, remove the gear (A) and align them. Once the marks (B) are aligned, replace gear (A).

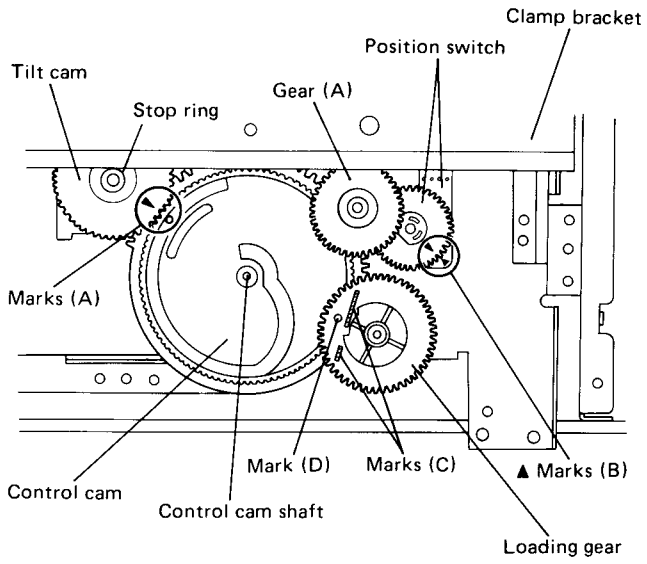


Fig. 7

3. Turn the control cam counterclockwise until it stops.
4. Set the loading gear so that the marks (C) on it are in parallel with the front chassis or clamp bracket. (Fig. 8)

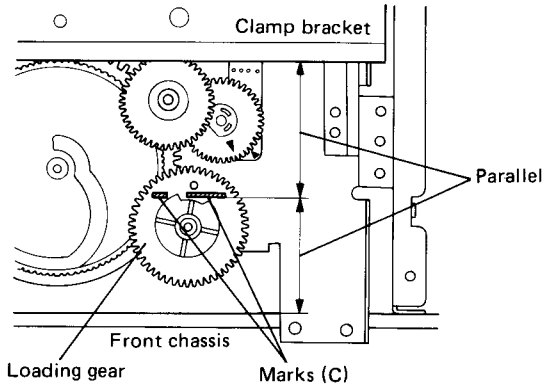


Fig. 8

5. With the loading guides (A) & (B) fully extended, mount the disc tray and loading guides on the chassis. (Fig. 9)
6. Check that the disc tray is inserted in parallel with the chassis.

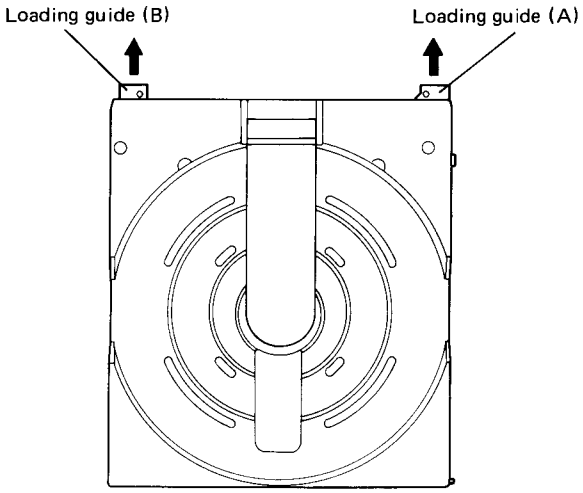


Fig. 9

7. With the disc tray in the fully open position, check that the marks (C) on the loading gear are in parallel with the rear edge of the disc tray. (Fig. 10)

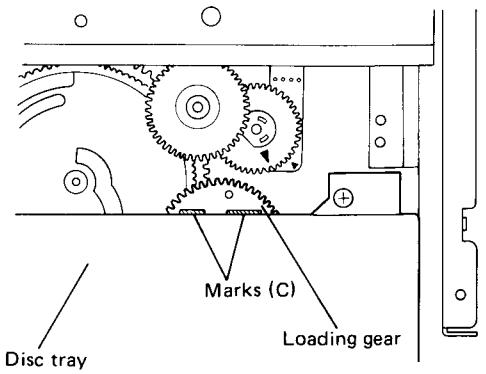


Fig. 10

8. Attach the loading guides (A) & (B) with screws (Figs. 2-1, 2-3), and push the disc tray into the loaded position.
9. Attach the top front brace. (Fig. 1)
10. Return the connective cord of the front panel to the original condition, and attach the front panel with screws. (Fig. 1)
11. Attach the top cover. (Fig. 1)

D. ATTACHING THE CONTROL CAM

In case you have removed the control cam, attach it following the procedure below.

1. Set the slide base drive shaft to the closest position to the control cam shaft. (Fig. 11)

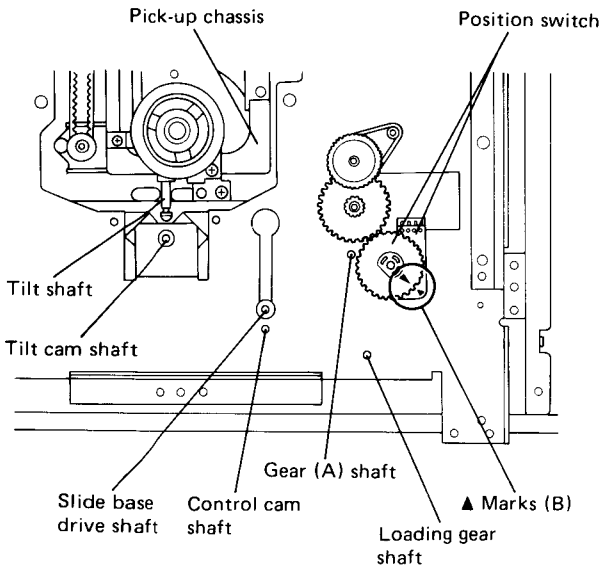


Fig. 11

2. Mount the control cam by passing the control cam's shaft through the hole on the center of the control cam and placing the slide base drive shaft into the guide groove on the back of the control cam, and secure the control cam with the washer. (Fig. 12)
   In case it is difficult to insert the slide base drive shaft into the guide groove, move the slide base drive shaft back by 0.5 to 1 mm apart from the control cam shaft.
3. Turn the control cam clockwise until it stops. Retain the control cam in this position until the tilt cam, gear (A) and loading gear have been mounted. (Fig. 12)
4. Holding the tilt cam so that its mark points to the tilt shaft, mount the tilt cam by passing the tilt cam shaft through the cam hole. Then, lower the tilt cam to a position with which the tilt cam gear does not engage with the control cam gear, and turn the tilt cam counterclockwise until it stops. (Fig. 12)
   Check that the tilt shaft is inserted into the guide groove on the tilt cam.

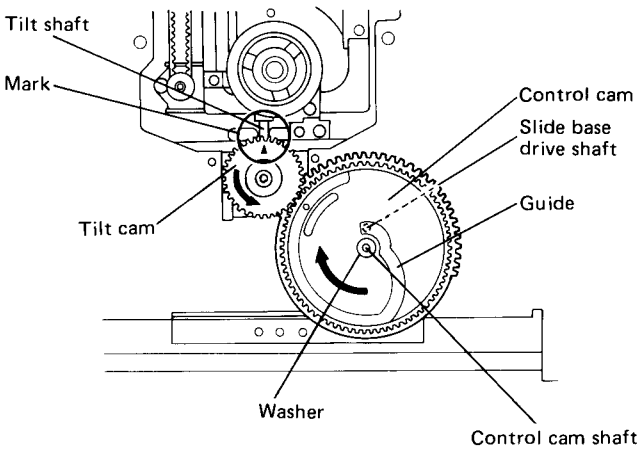


Fig. 12

5. Align the mark (A) on the control cam with the mark (A) on the tilt cam, and mount the E-clip on the tilt shaft. (Fig. 7) When the tilt cam is attached, the control cam may rotate counterclockwise due to the weight of the pick-up chassis. Return the control cam by turning it clockwise until it stops.
6. Align the mark (B) on the position switch as shown in Fig. 7 or Fig. 11.
7. Attach the gear (A) and mount the retaining ring. (Fig. 7)
8. Attach the loading gear so that its mark (D) points to the control cam shaft and mount the retaining ring. (Fig. 7)
9. Attach the tray assembly.

E. PICK-UP ASSEMBLY REPLACEMENT PROCEDURES

Use an ESD wrist strap when working around the unit, especially the LASER assembly.

1. Remove the top cover, then detach the RGB assembly (PG06) together with the insulator. (Figs. 1 and 2-1)
2. Insert the power plug into a power outlet, press the OPEN button to open the disc tray, then unplug the power plug.

Note: If tray assembly will not open then perform the MANUAL TRAY OPENING PROCEDURES (page 9).

6. Turn the slide motor drive gear with your finger to move the PICK-UP assembly until you can see it. (Fig. 14)
7. On the pick-up side, unlock the connector of the flexible wire by sliding the lock in the direction of the arrow, and disconnect the flexible wire. (Fig. 14)

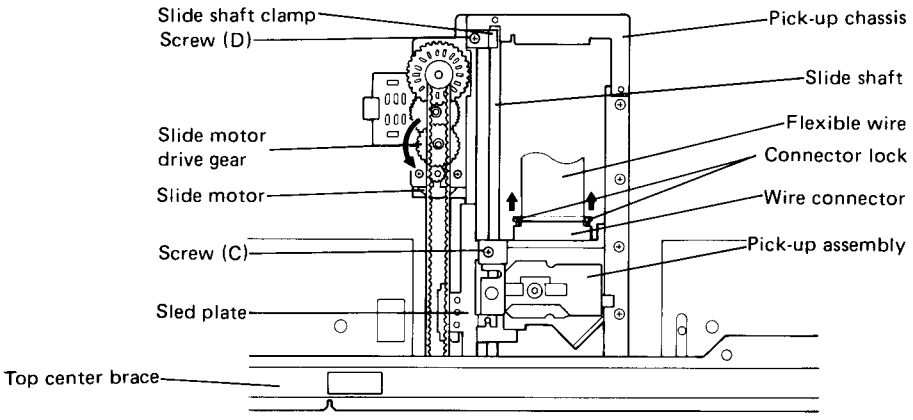


Fig. 14

3. Remove the fixing screws of the clamp bracket at both of its ends. (Fig. 13)
4. Force open the clamp bracket by a pointed instrument such as eyeleteer inserted between the clamp bracket (right side) and the mechanism chassis. Then, release the clamp bracket from a stopper (protrusion) of the mechanism chassis. (Fig. 13)
5. Force open the clamp bracket at its left side by hand, the release the clamp bracket from a stopper of the mechanism chassis, and detach it from the unit. (Fig. 13)

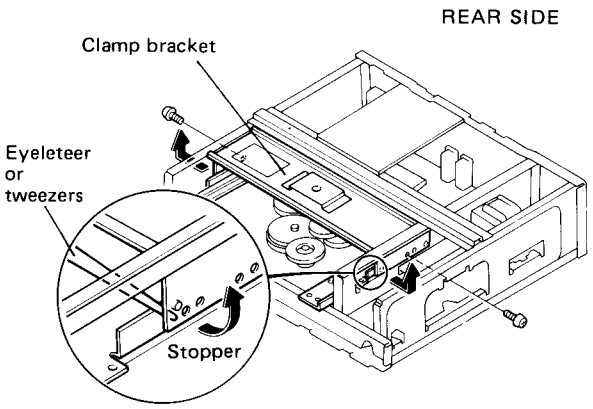


Fig. 13

8. Loosen the screw (E) which retains the slide shaft clamp from the center. (Fig. 15)
9. Remove the screw (C) which retains the sled plate and the screw (D) which retains the slide shaft clamp from the rear side. (Fig. 14)

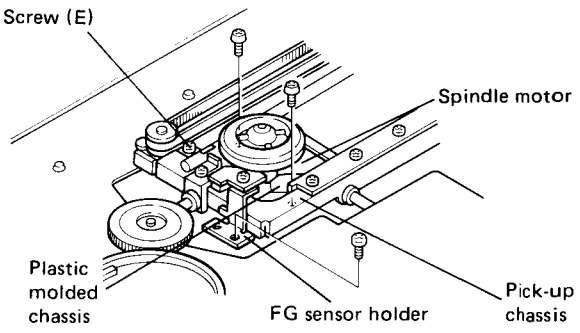


Fig. 15

10. Take out the slide shaft and PICK-UP assembly. (Fig. 16)
11. Replace with the new PICK-UP assembly, and reassemble the parts by reversing the procedure above.

Note: Be careful not to deform the pickup chassis during removal or installation.

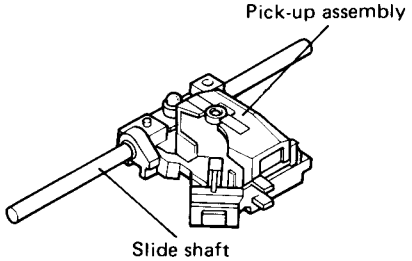


Fig. 16

F. SPINDLE MOTOR REPLACEMENT PROCEDURES

1. Perform steps 1-5 of "E. PICK-UP ASSEMBLY REPLACEMENT PROCEDURES."
2. Rotate the slide motor drive gear, and move the pick-up assembly to the rear panel side to permit the insertion of a hexagon wrench. (Fig. 14)
3. Loosen the hexagon socket head screw using a hexagon wrench, then draw out the turntable from the spindle motor shaft. (Fig. 17)
4. Remove the screws (F) installing the spindle motor to the plastic molded chassis. (Fig. 17)
5. Turn over the unit, thereupon detach the bottom plate, the main assembly (P506) and ROM assembly (PU06). (Fig. 5)
6. Disconnect CN1 on the loading motor assembly. (Fig. 18)
7. Remove the screws (G), then detach the guard plate and the spindle motor. (Fig. 18).
8. Replace the spindle motor with a new one, and perform reassembling in the procedure reverse to above.

Note: When installing the turntable to the spindle motor, follow the next "G. TURNTABLE INSTALLATION PROCEDURES."

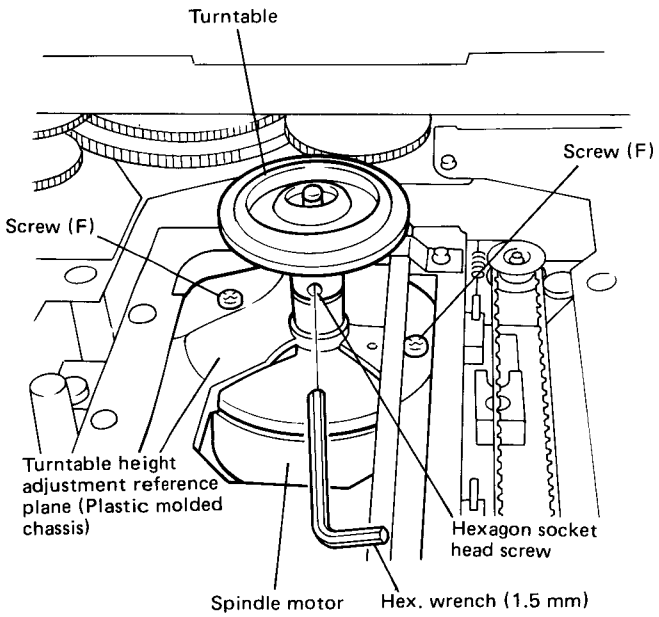


Fig. 17

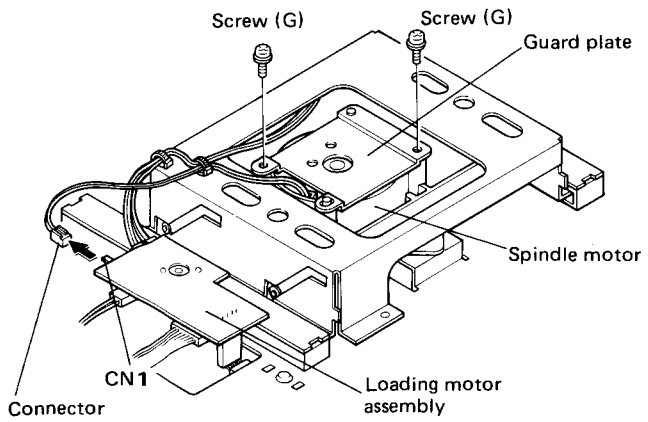


Fig. 18

G. TURNTABLE INSTALLATION PROCEDURES

1. Perform steps 4-8 of "F. SPINDLE MOTOR REPLACEMENT PROCEDURES" in reverse order, and fix the spindle motor to the plastic molded chassis by screws.
2. After full insertion of the turntable to the spindle motor shaft, keep the turntable 2–3 mm away from the bearing of the spindle motor shaft and tighten the hexagon socket head screw temporarily. (Fig. 19)
3. Place the turntable height adjusting device in close contact with the upper surface of the turntable in such a manner that its leg section comes above the height adjustment reference plane of the plastic molded chassis. (Figs. 17 and 20)
4. Loosen the hexagon socket head screw, and lower the turntable until the leg section of the height adjustment device comes into contact with the reference plane. Then, retighten the hexagon socket head screw securely. (Fig. 20)

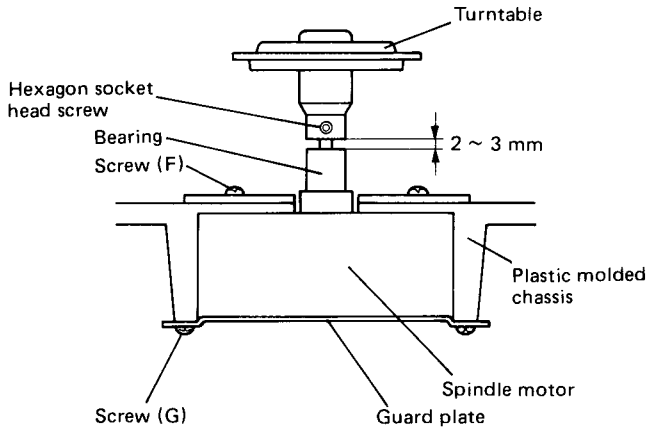


Fig. 19

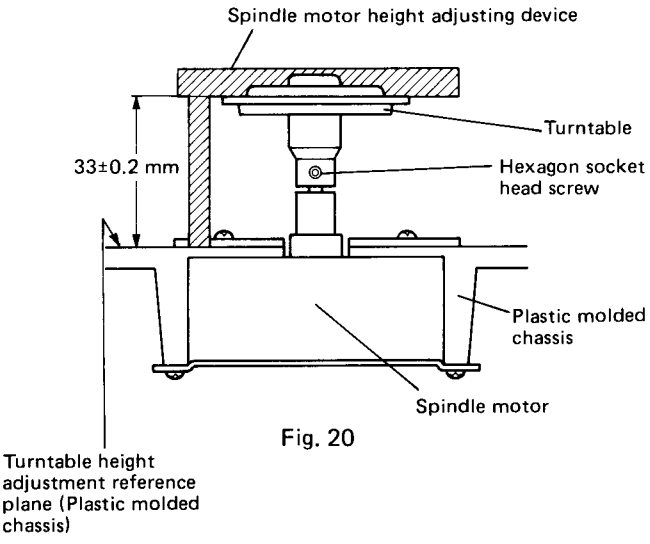


Fig. 20

V. ADJUSTMENT PROCEDURES

FIXTURES AND INSTRUMENTS REQUIRED FOR ADJUSTMENTS

- Small screwdriver
- Trox screwdriver set 4822 395 50145
- Hexagon wrench (1.5 mm)
- Dual-trace oscilloscope (with delay)
  Voltage range : 0.001 ~ 50 V/div.
  Frequency range : DC ~ 50 MHz
  Probes : 10:1, 1:1
- AF generator
- Frequency counter
  Frequency range: 0 ~ 50 MHz, 8 digit readout
- LD test disc (4822 397 30207)
- LD with digital audio disc (purchase locally)
- CD test disc (Philips 5A) (4822 397 30096)
- Spindle motor height adjusting device (4822 395 80389)
- Service test stand (4822 395 90896)
- Extension cables
  3P, Servo PCB (J281) ~ Main PCB (J501)
  (4822 321 61071)
  11P, RGB PCB (JM02) ~ Main PCB (J511)
  (4822 321 61072)
  12P, RGB PCB (JM01) ~ Main PCB (J701)
  (4822 321 61073)
  24P, Pick-up ass'y ~ Servo PCB (J101)
  (4822 321 61124)

A. ADJUSTMENT PREPARATIONS AND PRECAUTIONS

1. **Player settings**
   When adjusting the player, stand the set with the power transformer side down or place the set on the Service Test Stand, and open the MAIN assembly before starting adjustment.
2. **Opening the tracking servo**
   The tracking servo can be opened and closed during test mode controlled by microcomputer.
   (For details, refer to "Test Mode Operation".)
3. **Test discs**
   The LD test discs used in these adjustments may be either N series or F series. The frame numbers given in the text are N series numbers while those enclosed in parentheses are F series numbers.
4. **Oscilloscope**
   Unless specified otherwise, all oscilloscope settings shown in the connection diagrams are values obtained by using a 10:1 probe.

B. TEST MODE OPERATION

1. **How to enter Test mode:**
   Press and hold the PLAY and PAUSE keys simultaneously, and plug the AC power cord into the power outlet.
   At this time, the player goes automatic in PLAY.
   The player functions as it normally does.
   But the EDIT key, RANDOM key, and PROGRAM key do not operate.
2. **Operation**
   When the unit enters the Test mode, the picture on the TV monitor screen changes to the Test mode picture, where the internal information of the Main μ-COM is displayed.
   Except for the Main μ-COM internal information display mode, the Test mode operations can be controlled by the numeric keys of the Multi Laser Disc Player unit.

C. STEP MODE

Press RANDOM key "M" appears on screen.

The [0] . . . . [6] keys have the following functions.

1. Key function

[0] key:
The focusing operation can be switched ON.

[1] key:
The tilt servo can be switched ON.

[4] key:
The tracking servo can be switched ON.

[5] key:
The spindle servo can be switched ON.

2. How to terminate Test mode

Press the 7-key.
When Random key is pressed again, the service step mode is anabled again.

D. SERVO ASSEMBLY ADJUSTMENTS

IMPORTANT NOTE:

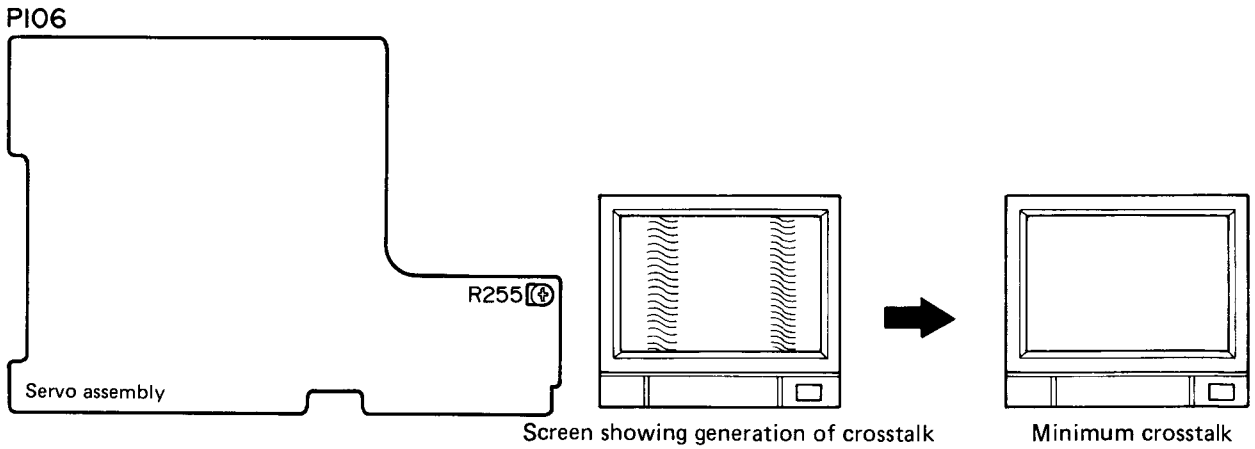
The following Servo adjustments can be performed separately.
Procedure D-7 and D-8
When one of items D-1 to D-6 for servo adjustment has been performed, perform items D-1 to D-6 for servo adjustment again.

D-1 Tilt Balance Adjustment

- Purpose: To adjust the electrical offset of tilt servo by means of the Tilt Balance Control (R255)
- Symptoms indicating need for adjustment: Crosstalk

• Measuring instruments and fixtures • Measuring position • Test disc and player mode • Adjustment position	• TV monitor • Player video output terminals • LD test disc #313 • Servo assembly P106, Tilt Balance Control (R255)	Notice: The LD test discs used in these adjustments may be either N series or F series. The frame numbers given in the text are N series numbers while those enclosed in parentheses are F series numbers.

Connection diagram



Adjustment Procedure

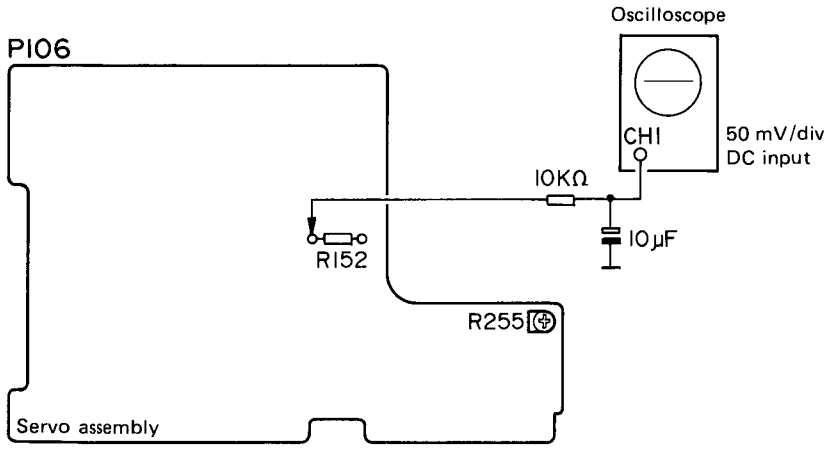
1. Play an LD test disc, and search to frame #313.
2. Turn R255 on the servo assembly board clockwise so that a crosstalk appears on the left side of the monitor screen.
3. Then, turn R255 counterclockwise carefully so that the crosstalk at the left side of the screen becomes minimum, then stop turning. (Pay attention not to exceed the point where the crosstalk is minimum.)

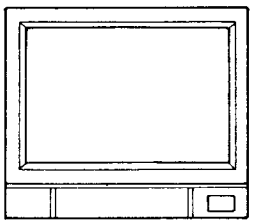
D-2 Tilt levelness check and adjustment

- Purpose: Make the tilt chassis be flat against the non-warped disc.
- Symptoms indicating need for adjustment: When a warped disc is loaded, the distance between the disc and the pickup cover becomes insufficient.

• Measuring instruments and fixtures	• Resistors (10 kΩ) • Capacitor (10 μF) • TV monitor
• Measuring position	• Read of R152 on Servo assembly • Player video output terminals
• Test disc and player mode	• LD test disc #313 and #45,000
• Adjustment position	• Servo assembly P106, Tilt Balance Control (R255)

Connection diagram





Minimum crosstalk

Adjustment procedure

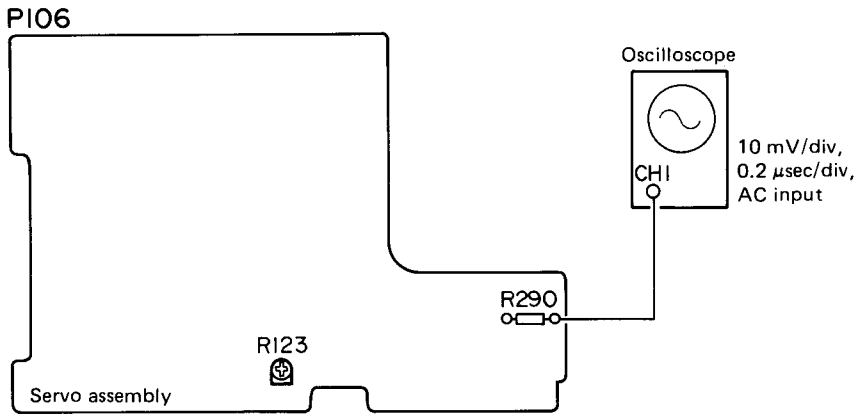
1. Play the LD test disc and search the frame #313. (Check that there is no warp on the disc beforehand.)
2. Connect the resistor, capacitor and an oscilloscope to the lead wire of R152 on the servo assembly board, as shown in the diagram.
3. Measure the DC voltage when the frame #313 is being played.
4. Then search the frame #45,000.
5. At this time, measure the DC voltage and check that the difference from that of #313 is within ±10 mV.
6. If the measured value is out of standard, adjust R255 so that the DC voltage at #45,000 becomes ±10 mV, using the DC voltage at #313 as a reference.
7. Search the frame #313 and check that the crosstalk does not appear on the monitor screen. If the crosstalk appears, perform the operation in item D-1. "Tile Balance Adjustment" again.

D-3 LD Focus (FOCS) Error Balance Adjustment

- Purpose: To ensure that the FOCS servo maintains the objective lens at the optimum distance from disc during LD plaback.
- Symptoms indicating need for adjustment: Crosstalk.

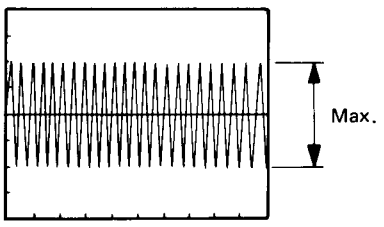
• Measuring instruments and fixtures	• Oscilloscope
• Measuring position	• Lead of R290 on Servo assembly (RF signal)
• Test disc and player mode	• LD test disc #15,000 (TRKG servo: closed)
• Adjustment position	• Servo assembly P106, LD Focus Balance Control (R123)

Connection diagram



Adjustment Procedure

1. Play an LD test disc and search to frame #15,000.
2. Connect the oscilloscope to the lead of R290 on the Servo assembly and observe the RF signal.
3. Adjust R123 on the Servo assembly to obtain an RF signal amplitude of maximum. (Fig. 19.)



RF Signal

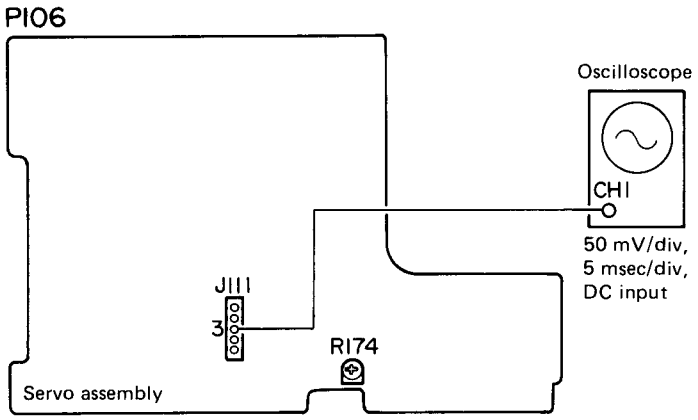
Fig. 19

D-4 Tracking (TRKG) Balance Adjustment

- Purpose: Adjust TRKG servo offset voltage to 0V.
- Symptoms indicating need for adjustment: Improper tracking (Jumping, Skipping etc.)

• Measuring instruments and fixtures	• Oscilloscope
• Measuring position	• Servo assembly J111-3 (TRKG error)
• Test disc and player mode	• LD test disc #15,000 • Test mode (TRKG servo open), Refer to "Test Mode Operation".
• Adjustment position	• Servo assembly P106, Tracking Balance Control (R174)

Connection diagrams



Adjustment Procedure

1. Access Test Mode and Play an LD test disc.
2. Press the DISPLAY key to display the frame No. on the TV screen.
3. Move the pick-up to frame #15,000 by scanning or searching using unit's key's.
4. Open the TRKG servo.
5. Connect the oscilloscope to J111-3 of the Servo assembly and observe the waveform.
6. Align the oscilloscope GND with the center of the oscilloscope screen.
7. Adjust R174 in the Servo assembly to a position where the positive and negative halves of the TRKG error waveform are equal. (See Photo 1.)

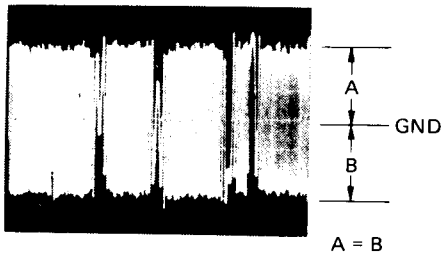


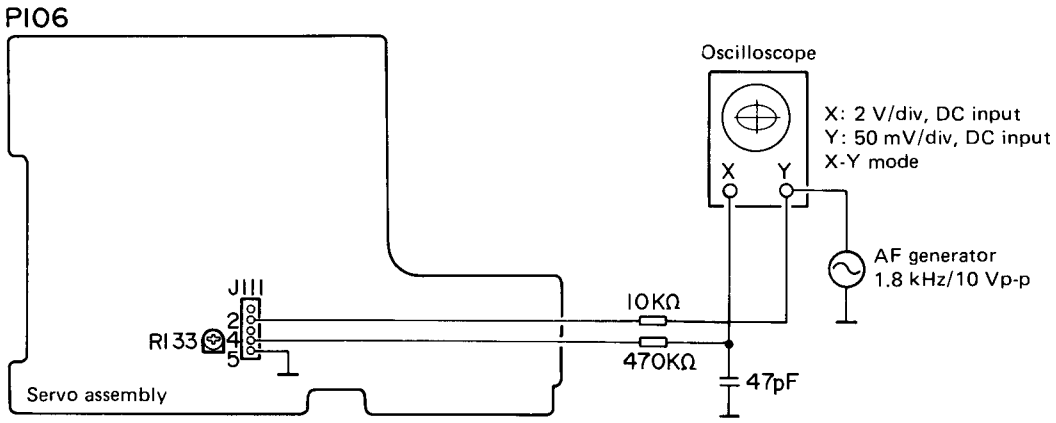
Photo 1.

D-5 FOCS Servo Loop Gain Adjustment

- Purpose: Adjustment of FOCS servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Degraded playability

• Measuring instruments and fixtures	• Oscilloscope • Resistors (10 kΩ, 470 kΩ) • Capacitor (47 pF) • AF generator
• Measuring position	• Servo assembly J111-4 (FOCS error), J111-2 (FOCS gain)
• Test disc and player mode	• LD test disc #15,000 (TRKG servo: closed)
• Adjustment position	• Servo assembly P106, Focus Gain Control (R133)

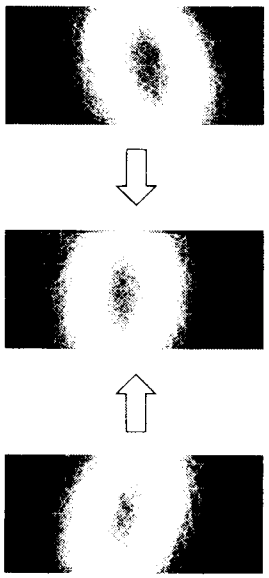
Connection diagram



Adjustment Procedure

1. Connect the resistors, capacitor, AF generator and oscilloscope to J111 on the Servo assembly as shown in the diagram.
2. Set the AF generator output to 1.8 kHz/10 Vp-p.
3. Put the oscilloscope into X-Y mode, and observe the Lissajour figures.
4. Adjust R133 on the Servo assembly until the Lissajous figures become symmetrical along the respective X and Y axes of the oscilloscope. (Photo 2.)

   Note: If the disc surface is scratched, the waveforms cannot be read due to noise. Be sure to use a disc which is not damaged.



Out of adjustment

After adjustment

Out of adjustment

Photo 2.

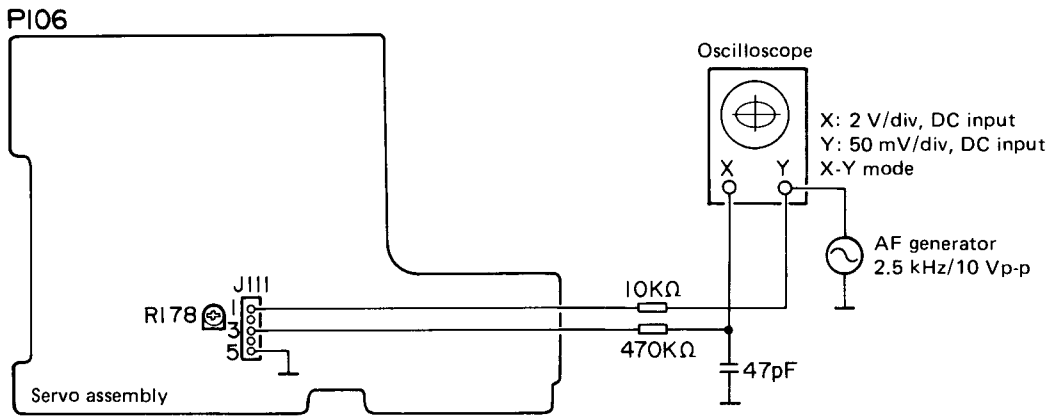
D-6 TRKG Servo Loop Gain Adjustment

- Purpose: Adjustment of TRKG servo loop gain to the optimum value.
- Symptoms indicating need for adjustment: Degraded playability

If the disc surface is scratched, the waveforms cannot be read due to noise. Be sure to use a disc which is not damaged.

• Measuring instruments and fixtures	• Oscilloscope • Resistors (10 kΩ, 470 kΩ) • Capacitor (47 pF) • AF generator
• Measuring position	• Servo assembly J111-1 (TRKG error), J111-3 (TRKG gain)
• Test disc and player mode	• LD test disc #15,000 (TRKG servo: closed)
• Adjustment position	• Servo assembly P106, Tracking Gain Control (R178)

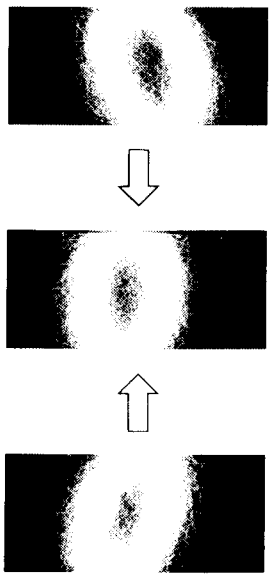
Connection diagram



Adjustment Procedure

1. Play an LD test disc and serch to frame #15,000.
2. Connect the resistor, AF generators, capacitor and oscilloscope to J111 on the Servo assembly as shown in the diagram.
3. Set the AF generator output to 2.5 kHz/10 Vp-p.
4. Put the oscilloscope into X-Y mode, and observe the Lissajous figures.
5. Adjust R178 on the Servo assembly until the Lissajous figures become symmetrical along their respective X and Y axes of the oscilloscope. (Photo 3.)

   Note: If the disc surface is scratched, the waveforms cannot be read due to noise. Be sure to use a disc which is not damaged.



Out of adjustment

After adjustment

Out of adjustment

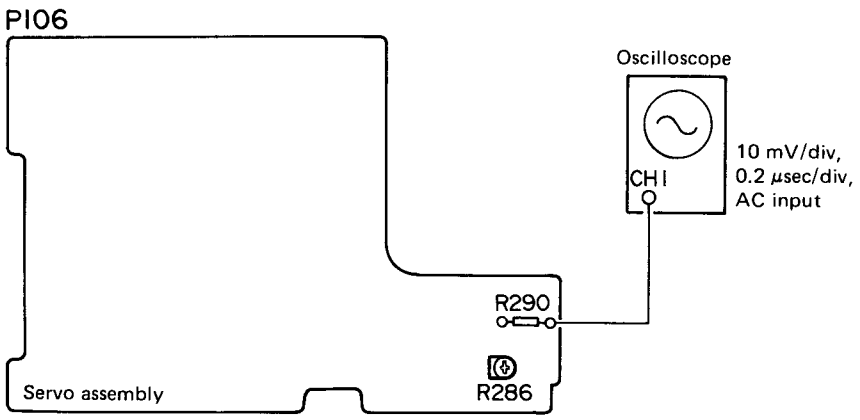
Photo 3.

D-7 RF Gain Adjustment

- Purpose: Adjustment of RF signal amplitude to the optimum value.
- Symptoms indicating need for adjustment: Frequent drop-out

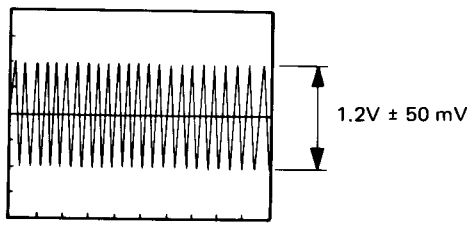
• Measuring instruments and fixtures	• Oscilloscope
• Measuring position	• Lead of R290 on Servo assembly (RF signal)
• Test disc and player mode	• LD test disc #15,000 (TRKG servo: closed)
• Adjustment position	• Servo assembly P106, RF Gain Control (R286)

Connection diagram



Adjustment Procedure

1. Play an LD test disc and search to frame #15,000.
2. Connect the oscilloscope to the lead of R290 on the Servo assembly and observe the RF signal.
3. Adjust R286 on the Servo assembly to obtain an RF signal amplitude of 1.2V ± 50 mV. (Fig. 20.)



RF Signal

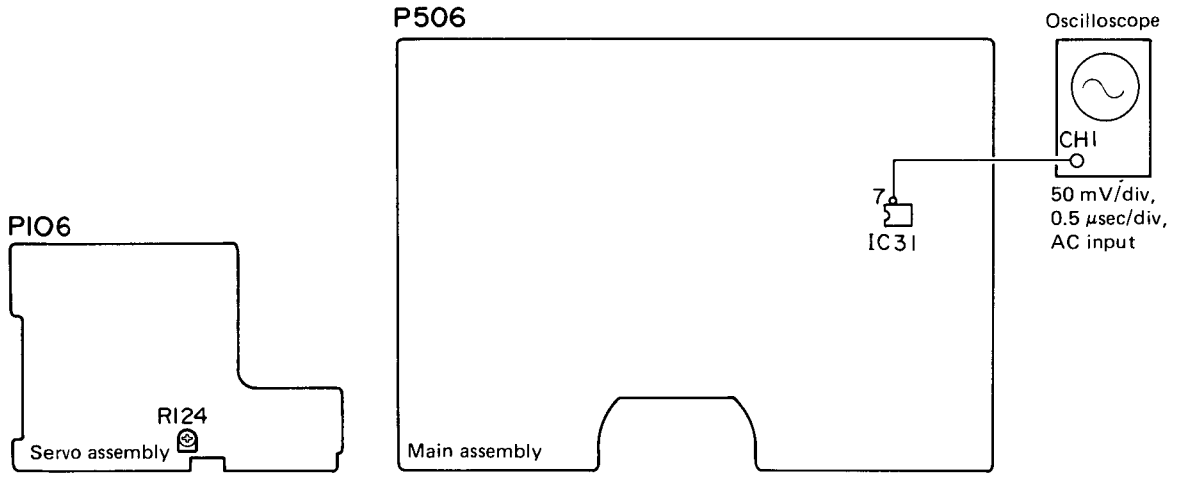
Fig. 20

D-8 CD FOCS Error Balance Adjustment

- Purpose: To ensure that the FOCS maintains the objective lens at the optimum distance from the disc during CD playback.
- Symptoms indicating need for adjustment: Noise in CD playback sound

• Measuring instruments and fixtures	• Oscilloscope
• Measuring position	• Main assembly P506, IC31 pin 7
• Test disc and player mode	• CD test disc (Philips 5A)
• Adjustment position	• Servo assembly P106, CD Focus Balance Control (R124)

Connection diagrams



Adjustment Procedure

1. Play a CD test disc.
2. Connect the oscilloscope to pin 7 of IC31 on the Main assembly, and observe the EFM signal (eye pattern).
3. Adjust R124 on the Servo assembly until the EFM signal reaches maximum amplitude. (Photo 4.)

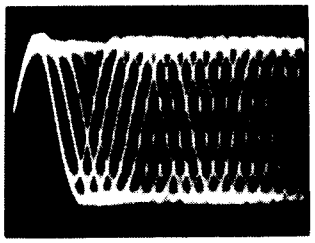


Photo 4. EFM signal

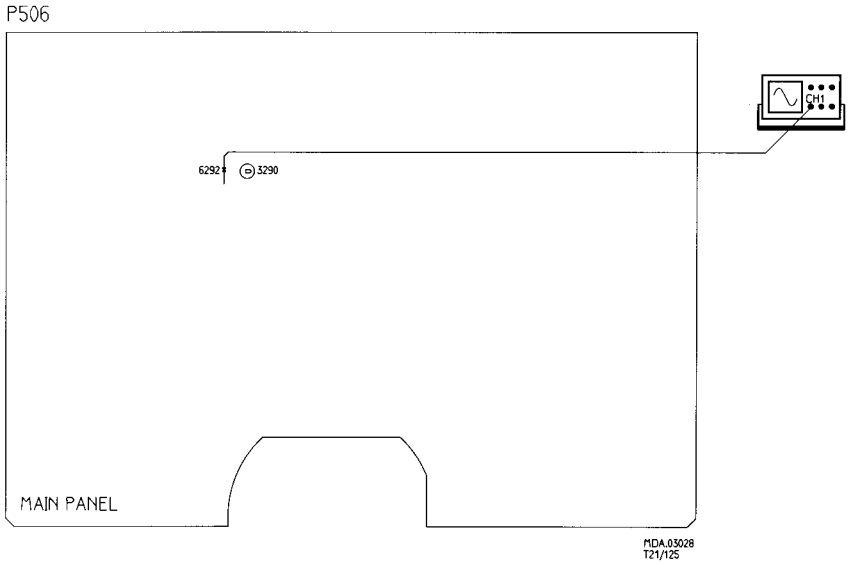
E. Main panel adjustments

- Purpose: Optimization of the CCD delay line for T.B.C.

- Symptoms indicating need for adjustment: Color lock failure, slow color lock after search.

• Measuring instruments	• Oscilloscope
• Measuring position	• Main panel, Diode 6292 kathode
• Test disc and player mode	• LD testdisc, play
• Adjustment position	• Main panel, potmeter 3290

Connection diagram



Adjustment Procedure

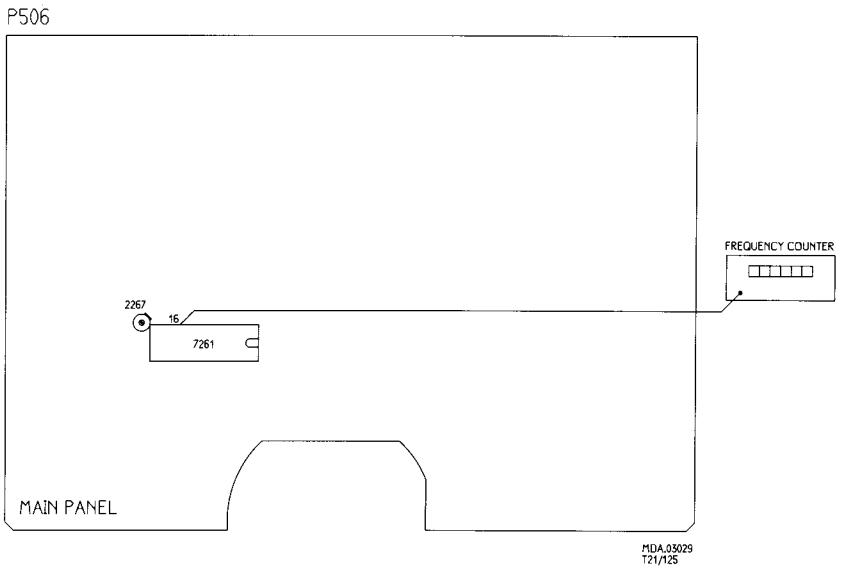
1. Play LD testdisc
2. Connect oscilloscope to the kathode of 6292
3. Adjust 3290 for a DC-level of 0 volt

- Purpose: Reference clock frequency adjstment

- Symptoms indicating need for adjustment: Bad drop out signal

• Measuring instruments	• Frequency counter
• Measuring position	• Main panel, IC726 pin 16
• Test disc and player mode	• Switch power on without playing disc.
• Adjustment position	• Main panel, 17.7 MHz control 2267

Connection diagram



Adjustment Procedure

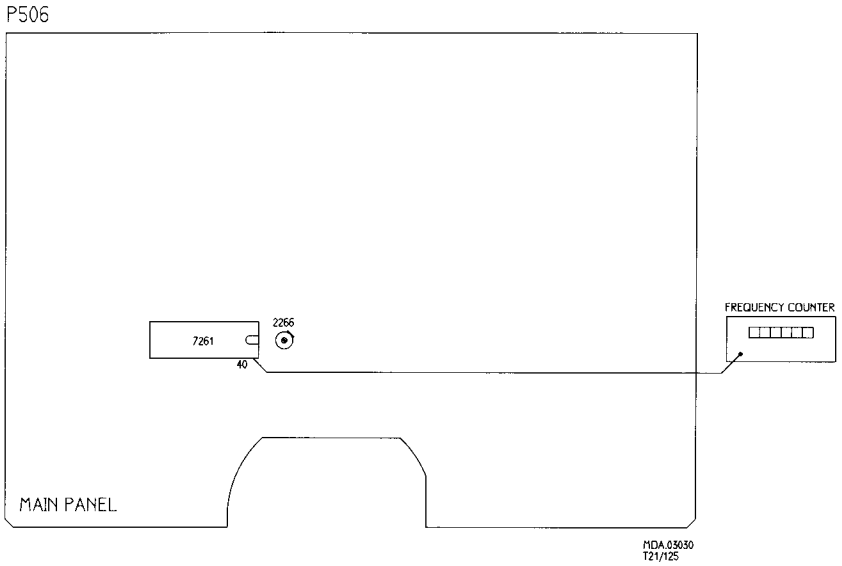
1. Switch on power, and connect a frequency counter to pin 16 of IC7261 on the main panel
2. Adjust 2267 until the reference frequency reads 8.867238Hz ± 6 Hz

• Purpose: Reference clock adjustment

• Symptoms indicating need for adjustment: Color aberration, spindle servo lock faiture

• Measuring instruments	• Frequency counter
• Measuring position	• Main panel, IC7261 pin 40
• Test disc and player mode	• Switch power on without playing disc.
• Adjustment position	• Main panel, 7.5 MHz control 2266

Connection diagram



Adjustment Procedure

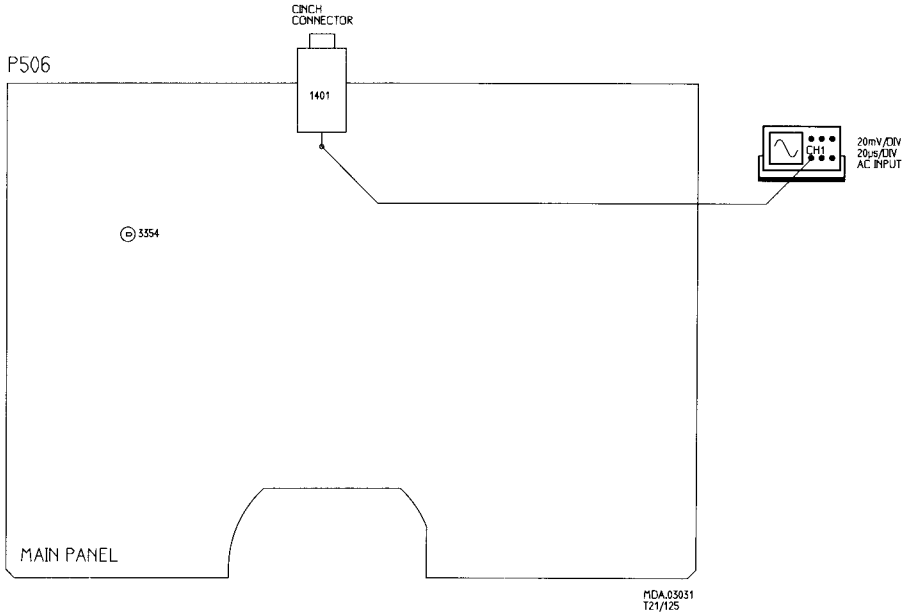
1. Switch on power, and, connect a frequency counter to pin 40 of IC7261 on the main panel
2. Adjust 2266 until the reference clock frequency reads 7.50000 MHz ± 10 Hz

• Purpose: Adjustment of the amplitude of the output video signal

• Symptoms indicating need for adjustment: Too dark or too bright picture, TXT malfunctions.

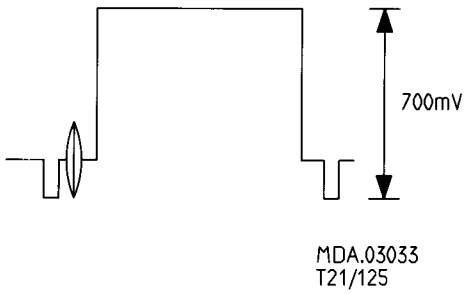
• Measuring instruments	• Oscilloscope
• Measuring position	• Main panel, cinch connector 1401 (top)
• Test disc and player mode	• LD test disc, white picture
• Adjustment position	• Main panel, video level control 3354

Connection diagram



Adjustment Procedure

1. Play a LD test disc, white picture
2. Connect oscilloscope to the cinch connector (top)
3. Adjust for a video amplitude of 700 mV with 3354 (with 75 Ω load)

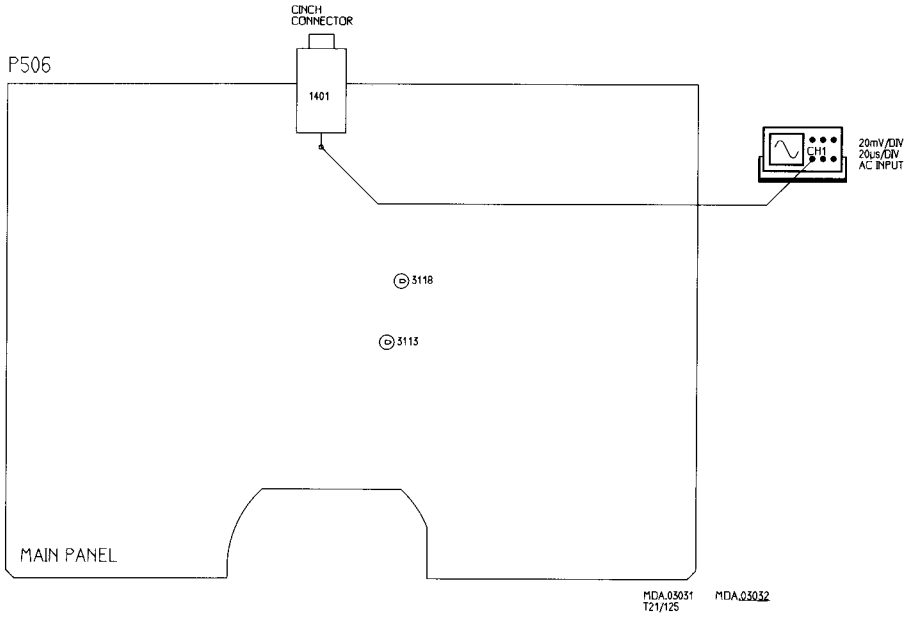


• Purpose: Minimize color flicker in special playing modes.

• Symptoms indicating need for adjustment: Color flicker in special playing modes.

• Measuring instruments • Measuring position • Test disc and player mode • Adjustment position	• TV monitor, Oscilloscope • Main panel, cinch connector 1401 (top) • LD test disc, still picture color bar. • Man panel, 3113 and 3118.

Connection diagram



Adjustment Procedure

1. Play a LD test disc, colorbar still picture frame 260
2. Connect oscillioscope to the CVBS-cinch connector (top) 1401. Adjust 3113 for minimum flicker in the chrominance signal. Check also TV monitor

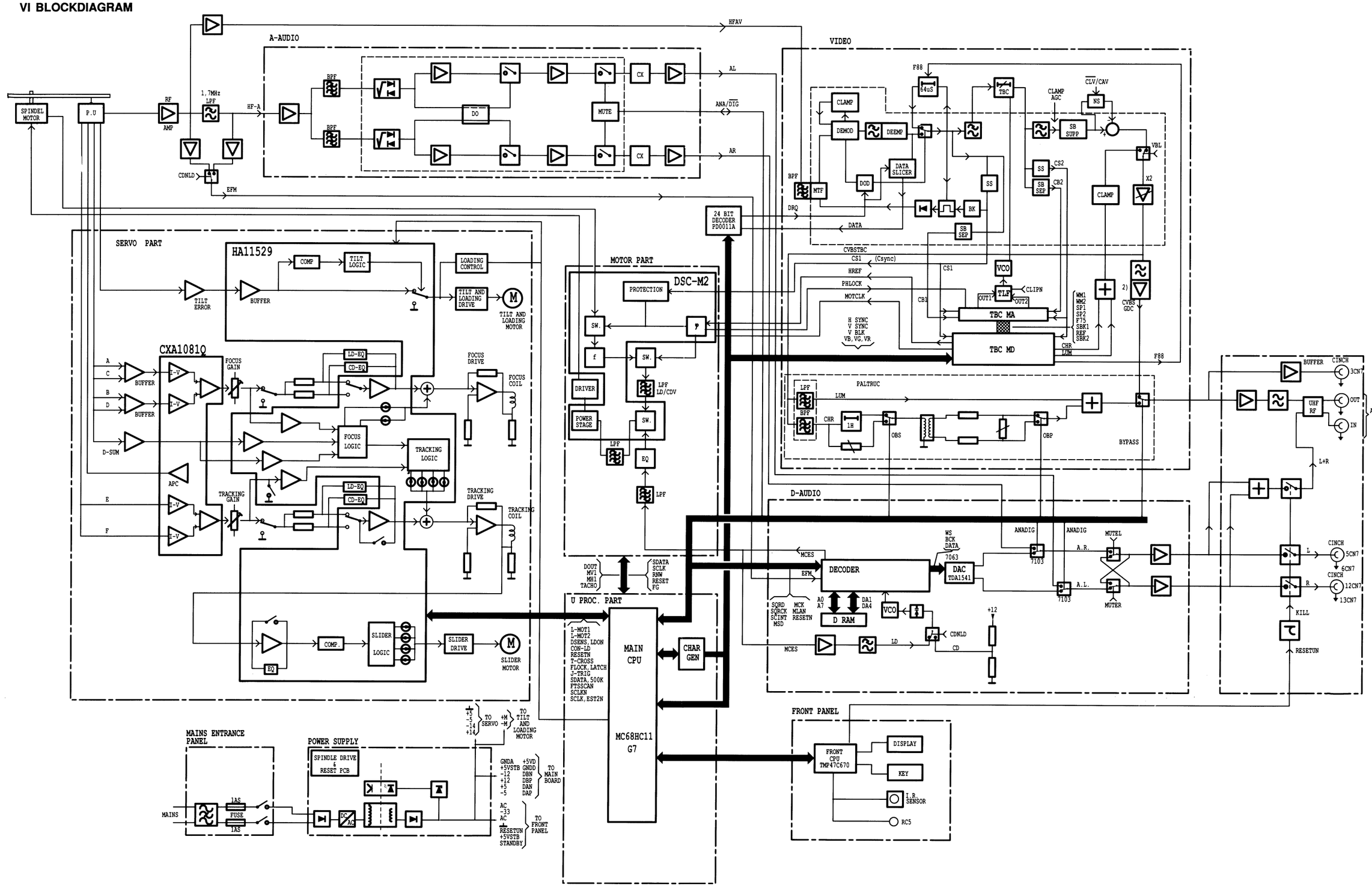
ABBREVIATION LIST

24DATA	24-bits Data
A/D	Analog/Digital Select
A-AUDIO	Analog Audio
AC	Accumulator
ACC	Automatic Color Control
ACK	Acknowledge
ACK	Automatic Color Killer
ADD, SUB SW	Addition, Subtraction Switch
ALT PLS	Line Alternate Pulse
AM	Additional Mute
ANTSW	Antenna Switch
AOL	L-ch Output
AOR	R-ch Output
APC	Automatic Power Controller
APC	Automatic Phase Control
ASY	Automatic Asymmetry Control
ATN	Attention
ATSB	Attenuation
ATT	Attenuate
B.P.F	Band-pass Filter
B.R.F	Band-rejection Filter
B&W	Black & White
BA	Bus Available
BCK	Bit Clock
BF	Burst Flag
BINPC	Input a B Color Signal from Personal Computer
BINTV	Input a B Color Signal from TV
BLK PLS	Blanking Pulse
BO	Data Bus
BSET	Brake Current Setting
BULDET	Burst Limiter and Detector
BUS CON	Bus Control
C IN (OUT)	Chroma Signal Input (Output)
C SYNC	Composite Sync.
CAS	Column Address Select
CAV	Constant Angular Velocity
CAV/CLV	CAV/CLV Select
CB	Color Burst
CCD 453 ST	CCD 453 Stage
CD	Compact Disc
CD/LD	CD/LD Select
CDO	Capacitor Down
CDROM	CD-ROM
CDV	Compact Disc Video
CE	Chip Enable
CHR SEP	Chroma Separator
CHRBUSY	Character Busy
CHRCLK	Character Generator Clock
CHRDAT	Character Data
CHRDATA	Character Data
CHROUT	Chroma Output
CHRSTB	Character Strobe
CIRC	Cross-Interleaved Reed-Solomon Code
CLAB	Clock
CLBD	Clock
CLK	Clock Input
CLP	Clamp
CLR	Clear
CLV	Constant Linear Velocity
COMP	Clock Duty Defect
COMP.	Comparator
COMPAR	Comparator
CPU	Central Processing Unit
CRI	Counter Reset Inhibit
CS	Chip Select
CSI	Composite Sync.
CSYNC	Composite Sync.
CTL	Control Register
CUP	Capacitor Up
CV	Composite Video Signal
CVBS	Composite Video Burst Signal
CWB1,2	External Loop Filter
CX	CX Noise Reduction
CX-NR	CX Noise Reduction
D.O.D	Drop-out Detector
D-OUT	Digital Output
D-RAM	Dynamic Random Access Memory
D-SUM	Detector Sum Level
D1,2	2-bits Setting for The Commutation Block
DAAB	Data
DABD	Data
DAC	Detector Sum AC
DAN	Drive-A, Negative
DAP	Drive-A, Positive
DATA REQ	24-bits Data Request
DBN	Drive-B, Negative
DBP	Drive-B, Positive
DDR	Data Direction Register
DEEM	De-emphasis Output
DEM	Demodulator
DEMO L	L-Channel Demodulator
DEMO R	R-Channel Demodulator
DEMOD	Demodulator
DET	Detector
DIN	Serial Data Input
DINT	Data Interpolated Input
DL AMP	Delay Line Amp.
DLA IN	Delay Line Amp. Input
DOB	Drop-out Not Input
DOS	Drop-out Sense
DOUT	Data Output
DP	Data Pointer
DREQ	Data Request
DRQ	24-bits Data Request
DSENSE	Disc Sensor Input
E	System Clock
E	E-Register
EFAB	Error Flag
EFAS	Error Flag A-Chip (Decoder) to Servo
EFL	Enable Frequency Loop
EFM	8-14 Modulation
EI	E-Amp. Input
EO	E-Amp. Output
EQ	Equalizer
ERF	Error Flag
ESTOP	Emergency Stop
ETL	Enable Tacho Loop
EXTAL	External Clock Input
F44	Clock Output (f-sub)
F75	Clock Input (7.5MHz)
F75	System Clock
F88	Clock Output (2 x f-sub)
FB	Feedback
FCD	Focus Error Amp. CD Input
FE	Focus Error
FEBIAS	Focus Error Bias
FEG	Focus Error Gain Amp. Input
FEGA	Focus Error Gain Amp. Output
FF	Flip Flop
FG	Spindle Frequency Generator
FIAT	Burst Fiat
FL	Focus Lock
FLD	Focus Error Amp. LD Input

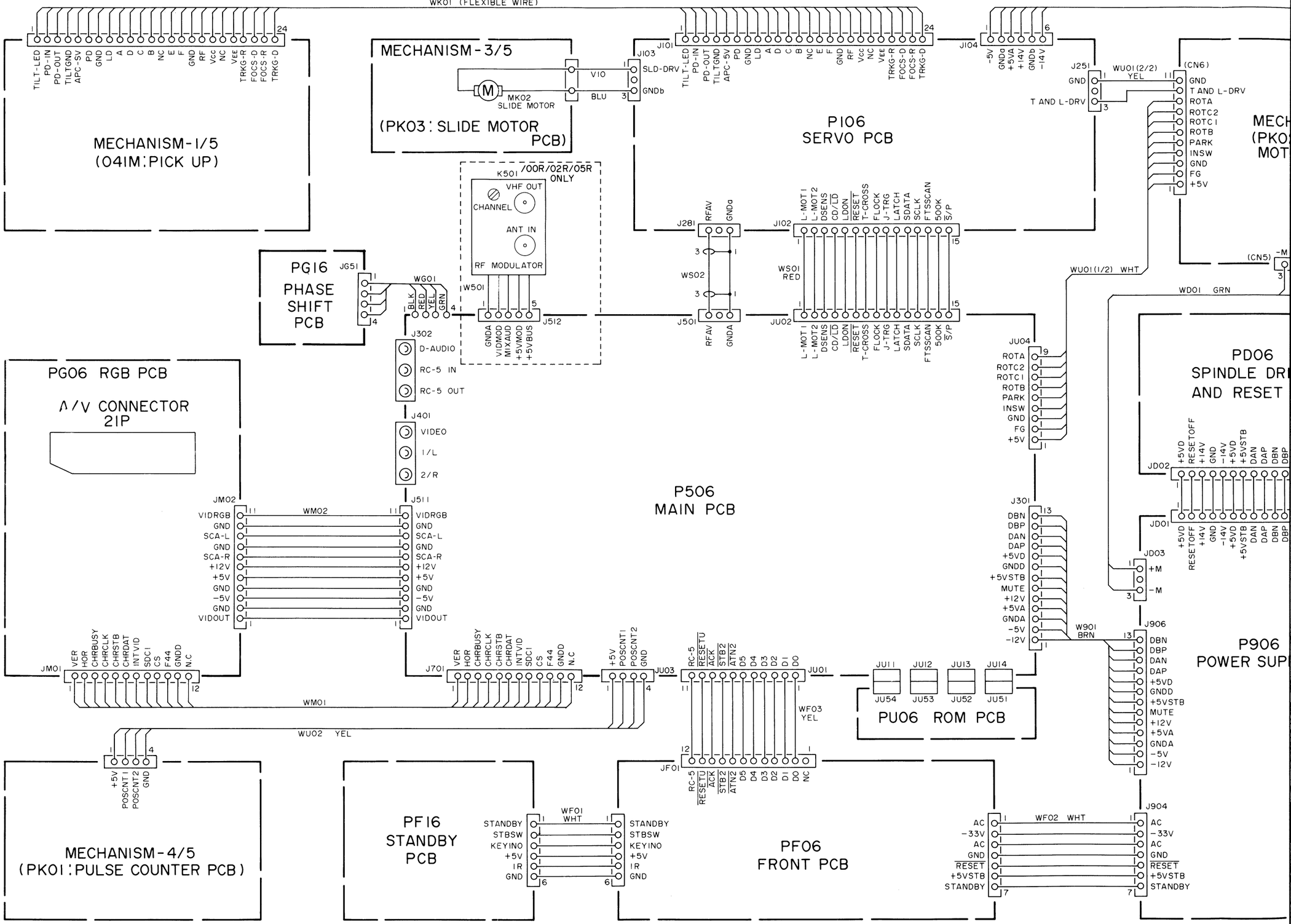
FLOCK	Focus Lock
FM DEM	FM Demodulator
FOCS	Focus
FOCS-D	Focus Drive
FOCS-R	Focus Return
FOK	Focus OK
FOST	Focus Error Amp. Offset Adjust
FPO	Focus OP-Amp. Output
FTD	Fluorescent Tube Display
FTSSCAN	FTS (Favorite Track Selection) Scanning
f	Frequency
G0 – 12	Digit 0 – 12
GEN	Generator
GINPC	Input a G Color Signal from Personal Computer
GINTV	Input a G Color Signal from TV
H PLS	Horizontal Pulse
H.P.F	High-pass Filter
H-SYNC	Horizontal Synchronizing Signal
HALF PICT	Half Picture
HALL A (B,C)	Input from Hall Motor
HFD	High-Frequency Detector
HFI	High-Frequency Input
HOR	Horizontal Sync.
I/O	Input/Output
I-V	Current/Voltage Converter
INIT	Reset Input
INJ	Injection Current Setting
INSW	Inside Switch
INT	Interrupt
INTVID	Internal Video
INV	Inverter
IR SENSOR	Infrared Sensor
IREF	Current Reference
IRQ	Interrupt Request
ISET	Internal Current Setting
J-TRG	Jump Trigger
JUMP	Jump Trigger Input
KEYIN0	Key In, 0
L.P.F	Low-pass Filter
L-MOT	Loading Motor Control
LD	Laser Diode
LD	Laser Disc
LDON	Laser Diode ON/OFF
LE	Latch Enable
LIM	Limiter
LIR	Load Instruction Register
LSEL	Left Channel Select
M.A	Measurement Analog
M.D	Measurement Digital
MCES	Motor Control Error Signal
MCIN	Motor Control Error Signal Input
MECHA SW	Mechanism Switch
MEPIB	Measurement Point In The Burst
MFE	Motor Frequency Error
MH	Protected Horizontal Sync.
MIRR	Mirror Comparator Output
MIX-A	Mix Audio Signal
MIXAUD	Mix Audio Signal
MOTRES	Motor Reset
MP0	Mode Program 0
MP1	Mode Program 1
MPE	Motor Phase Error
MPLL	Motor in Frequency Control Range
MS	Multi-Standard Input
MSC	Motor Speed Control
MTF	Modulation Transfer Function
MUSB	Mute
MV	Protected Vertical Sync.
NR	Noise Reduction
NT/PAL	NTSC/PAL
O.S.D	On-screen Display
OC	Oscillator Control Input
ODEN	Output Disable
OE	Output Enable
OSC	Oscillator
OSP	Over Speed Detection
OUTM	Comparator 3 Output
OUTP	Comparator 2 Output
P.U	Pickup
P/B DOBM	Digital Audio Output
P/N	P-Sub/N-Sub for Laser Diode
P/N	PAL/NTSC
P/S	Play/Still
PARK	Park Switch Input
PC	Personal Computer
PD	Photo Diode
PD	Phase Detector Output
PHLOCK	Phase Lock
PLN	PAL/NTSC Selection Input
PLN	PAL/NTSC Selection
PLOCK	Phase Locked Loop
PLOCK	Motor Phase Lock Signal
POS	Position Sensor
POSCNT	Position Control
POWSTB	Power Stand-by
PR1 – 4	Tacho Pulse Divider
PRE-FIFO	Pre Fast In Fast Out
PRES	Preset
PWM	Pulse Width Modulation
Q-DATA	Q-Channel Data
QCL	Q-Channel Clock
QRA	Q-Channel Request Input/Acknowledge Output
R/W	Read/Write Select
R/W	Read/Write
RAMP	Adjust for Ramp of Up-Down Signal
RAS	Row Address Select
RC DECODE	Remote Control Code Decode
RD	Read
REF0 – 6	7-bits Reference Rotation Speed
REFN	Reference Selection
REG	Regulator
RESETu	Reset of u-processor
REV	Reverse Speed Detection
RF-	RF Summing Amp.-Input
RF0	RF Summing Amp. Output
RFA	RF (Audio)
RFAV	RF (Audio/Video)
RH	Reference Horizontal
RH1	Horizontal Line Video Reference Signal
RINPC	Input an R Color Signal from Personal Computer
RINTV	Input an R Color Signal from TV
RLS	Radial Loop Switch
RNW	Read/Write Select
ROM	Read Only Memory
ROTA	Rotary Encoder Input A
ROTB	Rotary Encoder Input B
ROTC	Rotary Encoder Control
RSEL	Right Channel Select
RST	Reset
S/H	Sawtooth and Sample and Hold
S/P	Still/Play
S-COMP	Slider Comparator
S-TERMINAL	Super Video Output Terminal

S-VIDEO	Super Video
S1 – S6	Analog Switch
SBK	Set Burst Key
SC	Sub-carrier
SCA	A/V Connector, Audio Output
SCAB	Sub-coding Clock
SCI	Serial Clock Input
SCKN	Data-Clock Input
SCLK	Serial Data Clock
SCOR	Sub-code Synchronization
SDAB	Sub-coding Data
SDATA	Serial Data
SDATAIN	Serial Data Input
SDATAOUT	Serial Data Output
SDC	Sandcastle
SDR	Slider Drive Signal
SEG a – j	Segment a – j
SEP.	Synchronizing Signal Separator
SGSW	Signal Generator Switch
SI	Selects Superimposition
SLD-DRV	Slide Motor Drive
SLP	Slope Setting
SLPI	Slider OP-Amp. Input
SLPO	Slider OP-Amp. Output
SP	Set Plateau Key
SSM	Start/Stop Motor Input
ST	Scan Trigger Pulse
STB	Strobe
STBSW	Standby Switch
STBY	System Stand-by
STS	Status Register
SUB Q	Sub-code Q-Data
SW1 – 4	System Select Switch
SWAB	Sub-coding Word Clock Output
SWT	Internal Clock Divided by 256
T-CROSS	Tracking Cross
T&L-DRV	Tilt & Loading Motor Drive
TADC	Tacho Input for DC Motor
TBC	Time Base Corrector
TBCERR	Time Base Correction Error
TC	Time Constant
TCD	Tracking Error Amp. CD Input
TCNT	Track Count
TD1,2	2-bits to Set The Slope of The Current Limiter
TDR	Tracking Brake Drive Output
TE	Tracking Error
TGS	Tracking Gain Switching
TIDR	Tilt Drive Signal
TIPI	Tilt OP-Amp. Input
TIPO	Tilt OP-Amp. Output
TLD	Tracking Error Amp. LD Input
TM	Timer
TO1,2	Current Limiter (Accelerate or Brake)
TOC	Table of Contents
TOGL	Trick Play Toggle
TOK	Tacho-OK Signal
TP ADJ	Adjust The Burst Flag Position
TPO	Tracking OP-Amp. Output
TRKG	Tracking
TRKG-D	Tracking Drive
TRKG-R	Tracking Return
TSET	Tilt Comparator Setting
TSTB	Test Control Input
UPDN	Lens Up-Down Output
V.C.O	Voltage Controlled Oscillator
V-SYNC	Vertical Synchronizing Signal
VBL	Back Level
VCAL	Voltage Controlled Amplifier, L-ch
VCAR	Voltage Controlled Amplifier, R-ch
VCL	Character Level
VCXO	Voltage Controlled X'tal Oscillator
VDC/2	Reference Voltage Capacitor Pad
VDD/2	Reference Voltage Capacitor Pad
VDDA	Supply Voltage (Analog)
VER	Vertical Sync.
VHLF	Half-Luminance Input Color Encoder
VID IN	Video Input
VIDMOD	Video Modulator
VIDOUT	Video Signal to Output Connector
VIDRGB	Video Signal to RGB Circuit
VIDSCA	Video Signal to A/V Connector
VIDY/C	Video Y/C Signal
VMON	Character Monitor Terminal
VOB	Voltage Auto Bias
VP	Supply Voltage
VREF	Reference Voltage Output
VSSA	Analog Ground
VVL	Video Level
VXO	Voltage Controlled X'tal Oscillator
WM	Window for Measuring
WR	Write
WS	Word Select
WSAB	Word Select
WSBD	Word Select
WTO	Watch-dog Timer Output
XSYS	System Clock Output
XTAL	Crystal Oscillator
Y IN (OUT)	Y Signal Input (Output)
YH	Y Signal Halftone
YMIX	Y Signal Mix
YS	Y Signal Superimpose
ZRPM	Zero Rotation Detection
φ	Phase

VI BLOCKDIAGRAM



IX. WIRING DIAGRAM

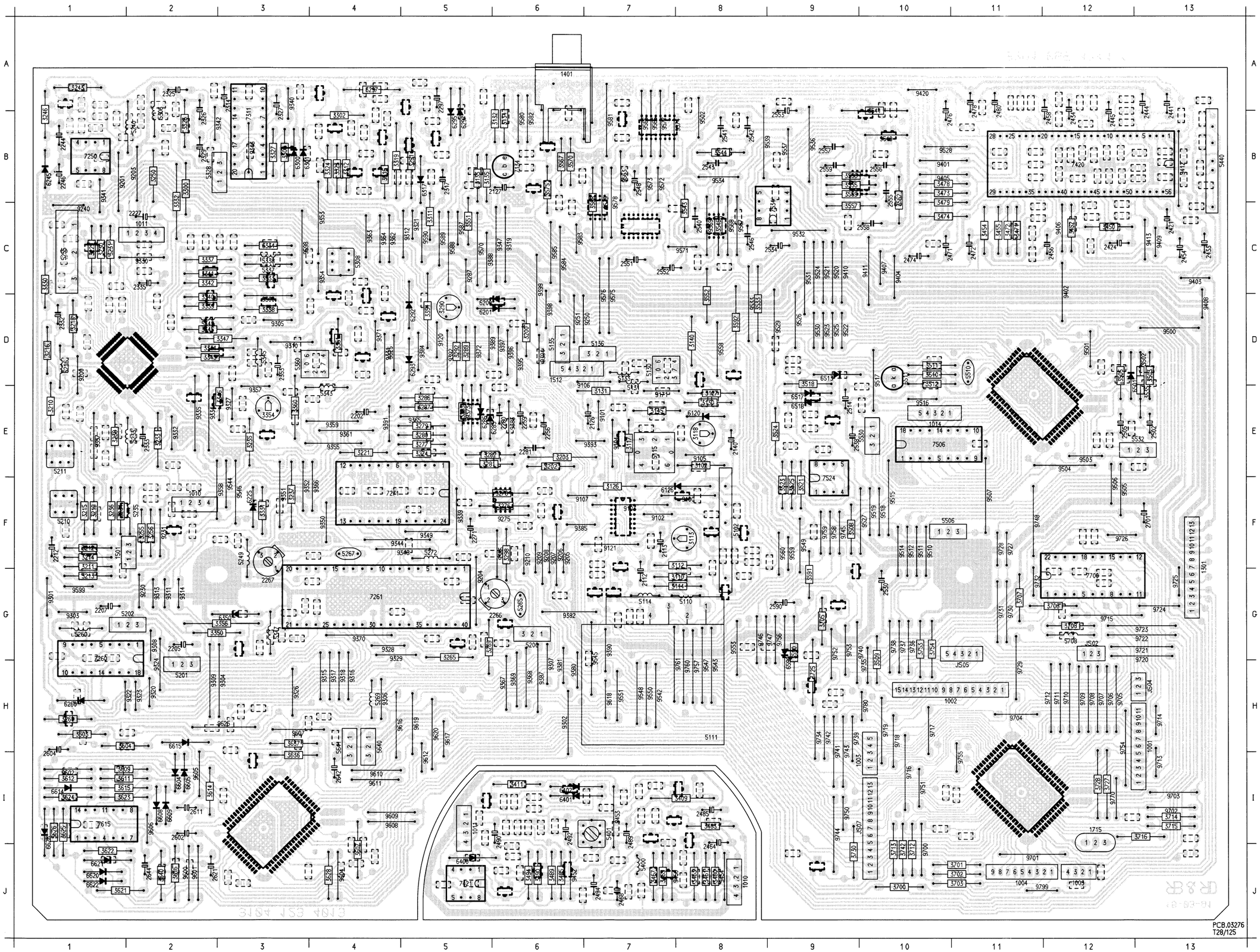


WK01 (FLEXIBLE WIRE)

MECHANISM-3/5

V10
BLU
MK02 SLIDE MOTOR
(PK03: SLIDE MOTOR PCB)
J103
SLD-DRV
GNDb
J101
TILT-LED
PD-IN
PD-OUT
TILTGND
APC-5V
PD
GND
LD
A
D
C
B
NC
E
F
GND
RF
Vcc
NC
VEE
TRKG-R
FOCS-D
FOCS-R
TRKG-D
J104
-5V
GNDa
+5VA
+14V
GNDb
-14V
J251
GND
T AND L-DRV
WU01(2/2) YEL
(CN6)
GND
T AND L-DRV
ROTA
ROTC2
ROTC1
ROTB
PARK
INSW
GND
FG
+5V
P106
SERVO PCB
MECHANISM-2/5
(PK02: LOADING MOTOR PCB)
(CN1)
RED/WHT
WHT
MK03 SPINDLE MOTOR
MK01 TILT AND LOADING MOTOR
A
C2
C1
B
SK03 ROTARY SWITCH (ENCODER)
(CN2)
WHT
BLU
SK01 IN SWITCH LD
(CN3)
WHT
RED
SK02 IN SWITCH LD
(CN5)
-M
+M
(CN4)
RED
WHT
WHT
GND
FG
+V
GP2S06
QK01 FG SENSOR
MECHANISM-5/5
WU01(1/2) WHT
WD01 GRN
K501 /00R/02R/05R ONLY
VHF OUT
CHANNEL
ANT IN
RF MODULATOR
W501
WG01
BLK
RED
YEL
GRN
J512
GNDA
VIDMOD
MIXAUD
+5VMOD
+5VBUS
J281
RFAV
GNDa
WS02
WS01 RED
J102
L-MOT1
L-MOT2
DSENS
CD/LD
LDON
RESET
T-CROSS
FLOCK
J-TRG
LATCH
SDATA
SCLK
FTSSCAN
500K
S/P
J501
RFAV
GNDA
JU02
L-MOT1
L-MOT2
DSENS
CD/LD
LDON
RESET
T-CROSS
FLOCK
J-TRG
LATCH
SDATA
SCLK
FTSSCAN
500K
S/P
JU04
ROTA
ROTC2
ROTC1
ROTB
PARK
INSW
GND
FG
+5V
PD06
SPINDLE DRIVE AND RESET PCB
JD02
+5VD
RESETOFF
+14V
GND
-14V
+5VD
+5VSTB
DAN
DAP
DBN
DBP
+M
-M
+5VSTB
RESET
JD01
+5VD
RESETOFF
+14V
GND
-14V
+5VD
+5VSTB
DAN
DAP
DBN
DBP
+M
-M
+5VSTB
RESET
J905
-5V
GNDa
+5VA
+14V
GNDb
-14V
W902 ORG
J4
J302
D-AUDIO
RC-5 IN
RC-5 OUT
J401
VIDEO
1/L
2/R
J511
VIDRGB
GND
SCA-L
GND
SCA-R
+12V
+5V
GND
-5V
GND
VIDOUT
P506
MAIN PCB
J301
DBN
DBP
DAN
DAP
+5VD
GNDD
+5VSTB
MUTE
+12V
+5VA
GNDA
-5V
-12V
JD03
+M
-M
W901 BRN
J906
DBN
DBP
DAN
DAP
+5VD
GNDD
+5VSTB
MUTE
+12V
+5VA
GNDA
-5V
-12V
P906
POWER SUPPLY PCB
POWER TRANSFORMER
T901
0V
220V
240V
(/00R/02R/19R) ONLY
(/05R) (ONLY)
P916
TRANSFORMER PCB
J901
W001
J701
VER
HOR
CHRBUSY
CHRCLK
CHRSTB
CHRDAT
INTVID
SDCI
CS
F44
GNDD
N.C
JU03
+5V
POSCNT1
POSCNT2
GND
JU01
RC-5
RESETU
ACK
STB2
ATN2
D5
D4
D3
D2
D1
D0
WF03 YEL
JU11
JU12
JU13
JU14
JU54
JU53
JU52
JU51
PU06 ROM PCB
JF01
RC-5
RESETU
ACK
STB2
ATN2
D5
D4
D3
D2
D1
D0
NC
PF16 STANDBY PCB
WF01 WHT
STANDBY
STBSW
KEYINO
+5V
IR
GND
PF06 FRONT PCB
WF02 WHT
AC
-33V
AC
GND
RESET
+5VSTB
STANDBY
J904
AC
-33V
AC
GND
RESET
+5VSTB
STANDBY

CS 44 396



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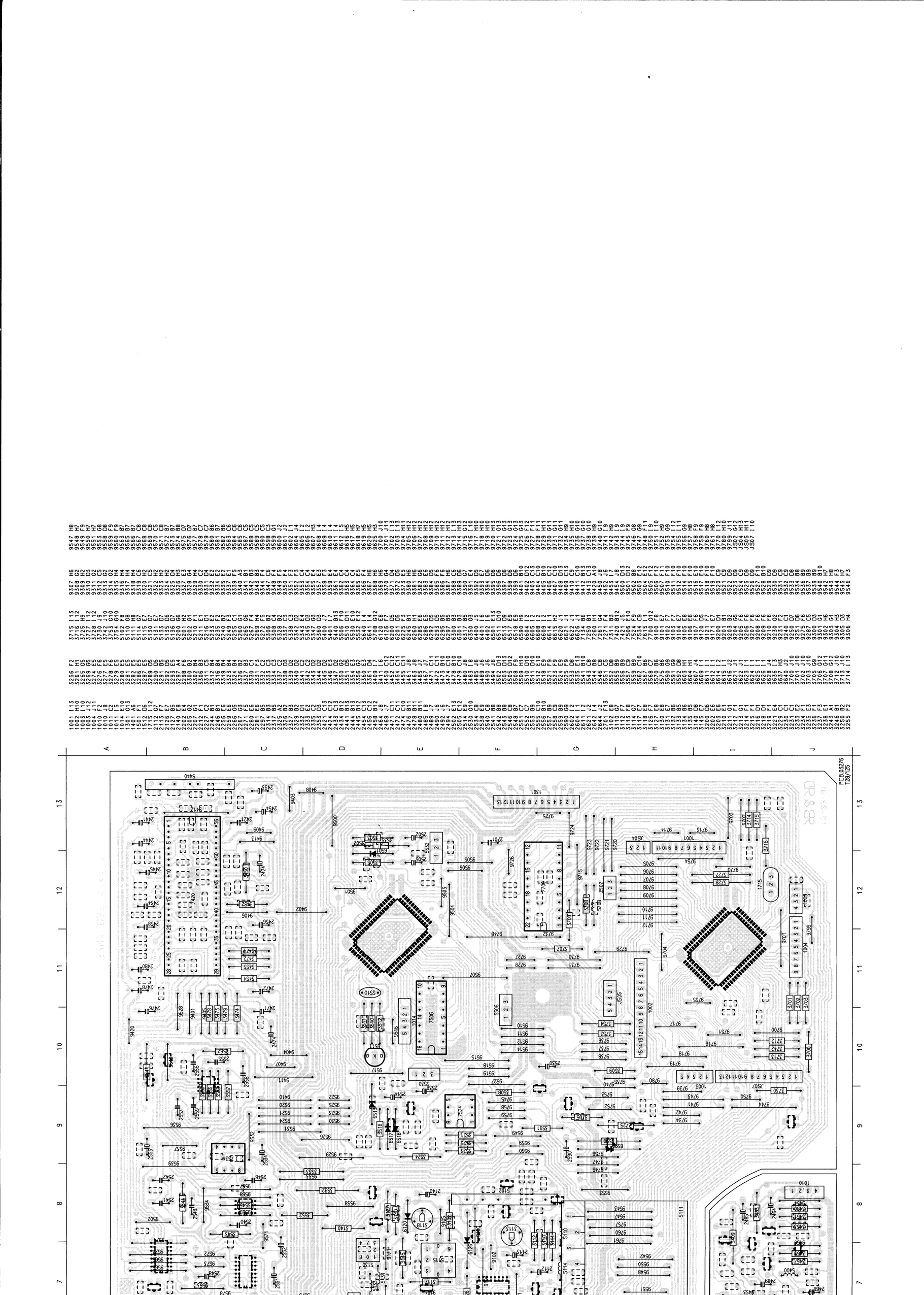
1001 I13	3256 F2	3715 I13	9307 H6	9547	
1002 H10	3261 H1	3716 I12	9308 G2	9548	
1003 I10	3265 G5	3725 H9	9309 H2	9549	
1003 J12	3269 G5	3727 I12	9310 D3	9550	
1004 J11	3274 E5	3728 I12	9311 G2	9551	
1010 F2	3276 F6	3730 J9	9312 C5	9553	
1010 J8	3277 E5	3742 J10	9313 G5	9558	
1011 C2	3278 F6	3753 G10	9314 G2	9559	
1011 I5	3279 E5	3754 G10	9315 H4	9560	
1014 E10	3280 E5	5102 F8	9316 H4	9563	
1301 G13	3281 E5	5110 G8	9317 H4	9565	
1401 A6	3282 E5	5111 H8	9318 H4	9566	
1501 F1	3286 E5	5114 G7	9319 C6	9567	
1512 D6	3287 E5	5115 E7	9320 H2	9568	
1715 I12	3289 D5	5130 D7	9321 C5	9569	
2112 G7	3290 D5	5131 E7	9322 H2	9570	
2113 F7	3291 B5	5133 D7	9323 H2	9571	
2126 E7	3292 D5	5135 D6	9324 H2	9572	
2127 B5	3293 E5	5136 D7	9325 D4	9573	
2140 E8	3297 A4	5200 G6	9326 H3	9574	
2202 E4	3298 F6	5201 H2	9327 E3	9575	
2205 G2	3300 B2	5202 F1	9328 G4	9576	
2207 G1	3302 B4	5210 F1	9329 H4	9577	
2212 F1	3306 B3	5211 E1	9330 C2	9578	
2227 C2	3311 C5	5216 D1	9331 D4	9579	
2244 D1	3312 B4	5233 E2	9332 D4	9580	
2246 B1	3316 B4	5235 F2	9334 E2	9581	
2256 E6	3319 B4	5240 B2	9335 E2	9582	
2259 E6	3323 B4	5249 F3	9337 E1	9583	
2266 G5	3324 B4	5255 C1	9339 F5	9584	
2267 G5	3326 B2	5260 C1	9340 A3	9585	
2271 F5	3327 B3	5265 G6	9341 B1	9587	
2280 E6	3330 C1	5267 F4	9342 B3	9588	
2281 E6	3331 F3	5269 H4	9343 B3	9589	
2297 B5	3332 C2	5272 E5	9344 C4	9590	
2314 B5	3333 C3	5306 B6	9347 C4	9598	
2317 B5	3334 C3	5308 C4	9348 F4	9599	
2325 A2	3337 C2	5328 B2	9349 F5	9600	
2326 B2	3338 D3	5337 C3	9350 F4	9601	
2327 B3	3339 D2	5338 D2	9351 F3	9602	
2329 B2	3340 D2	5342 D2	9352 F3	9604	
2332 D1	3341 C2	5343 E4	9353 C4	9605	
2333 E2	3342 C2	5345 D3	9354 C4	9606	
2335 C2	3343 D2	5347 G3	9355 E4	9607	
2353 C3	3344 D2	5360 D3	9357 E4	9608	
2421 C13	3345 D2	5400 J7	9358 F3	9609	
2424 C12	3346 E3	5401 I7	9359 E4	9610	
2433 C13	3347 D2	5440 B13	9361 E4	9611	
2434 B12	3350 G2	5506 F10	9362 C4	9612	
2435 B13	3353 D5	5511 H11	9363 C4	9614	
2444 B13	3354 E3	5530 E10	9364 C4	9617	
2445 B12	3356 G2	5532 E12	9365 E5	9618	
2454 C13	3360 E3	5640 I4	9366 F4	9619	
2456 C12	3361 D4	5641 I4	9367 H6	9620	
2458 B12	3409 I7	6120 G12	9368 H6	9625	
2464 J8	3411 I6	6120 E8	9369 H6	9700	
2468 J7	3450 C12	6126 F7	9370 G4	9701	
2471 C11	3452 C12	6200 D5	9371 D4	9702	
2472 C11	3454 C11	6201 D5	9372 E5	9703	
2474 C11	3455 C11	6202 D5	9373 E5	9704	
2476 B11	3461 J8	6245 B1	9380 H6	9705	
2478 B11	3463 J8	6260 H1	9381 H6	9706	
2480 B11	3465 J7	6285 E6	9382 G6	9707	
2485 I8	3467 J7	6286 D5	9383 G6	9708	
2489 J7	3471 C11	6292 D5	9384 D5	9709	
2490 J6	3472 C11	6293 D5	9385 F6	9710	
2492 J6	3473 B10	6295 B5	9386 F6	9711	
2494 J7	3474 C10	6297 B5	9387 H6	9712	
2502 E13	3478 B10	6300 B5	9388 H6	9713	
2505 E12	3479 C10	6301 B3	9389 D6	9714	
2514 E9	3480 J8	6317 B5	9390 G7	9715	
2530 G10	3483 I8	6350 G3	9391 E4	9716	
2534 C8	3485 J6	6400 J5	9392 E5	9717	
2538 B9	3486 J6	6401 I6	9393 E5	9718	
2540 C8	3490 J6	6402 I6	9394 D6	9719	
2541 B8	3494 J6	6501 E13	9395 D6	9720	
2542 B8	3502 D13	6511 D10	9396 D6	9721	
2543 B8	3503 D13	6513 D9	9397 D6	9722	
2546 C8	3505 D12	6517 E9	9398 D6	9723	
2548 B7	3508 F9	6518 E9	9399 D6	9724	
2551 C7	3509 H10	6590 H9	9401 B10	9725	
2552 C7	3510 D10	6604 I2	9402 D12	9726	
2553 B9	3511 H11	6605 I2	9403 C12	9727	
2555 C10	3512 E10	6608 I2	9404 C10	9728	
2556 B10	3518 E9	6609 I2	9405 B10	9729	
2557 B9	3521 F9	6614 I1	9406 C12	9730	
2558 G9	3523 F9	6615 H2	9407 C10	9731	
2559 B9	3524 F9	6620 J1	9408 D12	9732	
2590 G9	3525 F9	6621 J1	9409 C13	9734	
2602 I2	3533 D8	6622 J1	9410 C9	9735	
2604 I1	3535 E13	6626 J1	9411 C10	9736	
2611 I2	3541 B10	7134 B6	9412 B13	9737	
2612 I2	3543 C8	7260 H1	9413 C12	9738	
2642 I4	3544 B8	7261 G4	9420 A10	9739	
2644 J2	3546 C8	7271 F4	9450 J8	9740	
2701 F13	3551 C5	7311 B3	9452 J6	9741	
3102 E8	3552 D8	7421 B5	9453 I7	9742	
3110 E7	3555 B9	7421 B12	9454 I8	9743	
3112 F7	3556 B9	7421 J5	9500 D13	9744	
3113 F8	3557 C9	7506 E10	9501 D12	9745	
3114 G7	3559 B9	7524 F9	9502 B8	9746	
3117 E7	3562 C10	7534 C9	9503 E12	9747	
3118 E8	3567 B6	7615 I1	9504 E12	9748	
3126 F7	3568 C7	7700 G12	9505 F12	9750	
3127 E8	3570 B6	9100 F8	9506 F12	9751	
3130 E8	3575 B6	9101 E7	9507 F11	9752	
3131 E7	3590 G9	9102 F7	9510 F10	9753	
3132 B6	3591 G9	9103 F7	9511 F10	9754	
3133 B5	3592 D8	9104 E7	9512 F10	9755	
3134 B6	3603 H1	9105 E8	9514 F10	9756	
3135 B5	3604 H1	9106 E6	9515 F10	9758	
3140 D8	3607 J4	9107 F6	9516 D9	9759	
3145 E7	3609 I1	9120 D5	9517 E10	9759	
3200 D6	3611 I1	9121 F7	9518 F10	9760	
3202 E6	3612 I1	9171 E7	9519 F10	9761	
3205 E6	3614 I2	9200 D1	9520 C9	9770	
3210 E1	3615 I1	9201 D1	9521 C9	9780	
3211 G1	3616 J2	9203 B2	9522 D9	9799	
3212 F1	3621 J1	9204 G5	9523 D9	JS02	
3213 G1	3622 J1	9205 F6	9524 C9	JS04	
3214 F1	3625 I1	9206 F6	9525 D9	JS05	
3215 F1	3624 I1	9207 F6	9526 D9	JS07	
3216 D1	3625 I1	9208 F6	9527 F10		
3218 D1	3626 I1	9209 F6	9528 B10		
3219 F1	3628 J4	9210 F6	9529 D9		
3221 E4	3636 I3	9230 G2	9530 D9		
3229 C1	3637 H5	9231 F2	9531 C9		
3230 C1	3640 J2	9240 C1	9532 C9		
3231 C1	3700 J10	9250 D7	9533 D8		
3233 E2	3701 J10	9251 D6	9534 B8		
3234 F1	3702 J10	9275 F6	9536 B9		
3235 F3	3703 J10	9287 C5	9537 B9		
3236 F1	3705 G9	9300 D3	9539 B9		
3237 F3	3706 G12	9301 G1	9540 B10		
3238 E1	3707 G11	9302 H6	9542 H7		
3243 A1	3708 G12	9303 G1	9543 H8		
3246 B1	3712 J10	9304 H3	9544 F3		
3250 B2	3713 J10	9305 D3	9545 H7		
3255 F2	3714 I13	9306 H4	9546 F3		


PCB.03276
128/725

VIDEO I

FROM SERVO

FROM POWER PANEL

7212 C TEA7650H

7212 A TEA7650

7212 B TEA7650

7211 BC848B

7210 BC858B

7243 BC848B

7250 MSM7401

7200 BC848B

7300 BC848B

7260 UPD6451

7261 TBC-MD

7271 TBC-MA

7270 BC848

7272 BC848B

7262 BC858B

7235 BC858B

7311 CXL1009P

MC14580 7274

5210 BSF1066KHz

5211 BPF8MHZ

5225 LPF5.2MHZ

DATA SLICER

DOD

MTF

FM

CLAMP

FIELD SYNC. SEP.

AGC

8dB

1≥1 2us DELAY

CHR SEP

SYNC SEP

BURST GATE

BURST KEY GEN.

CCD 565 STAGE

DUTY CONTROL

CLOCK DRIVER

AUTO BIAS

AMPL

OUTPUT STAGE

CONT DATA REG

ROM

RAM

INPUT REG

VERT COUNTER

HOR COUNTER

OSC.

BUS CON.

COLOUR ENCODER

TEST

SYNC. 1

SYNC. 2

RH1

REF.

OSC. 1

OSC. 2

POR

MEPIB 1

MEPIB 2

BULDET 1

BULDET 2

LOGIC 1

LOGIC 2

AUTOBIAS CENTER CIRCUIT

+5Vb

+5Va

+5VE

+5VF

+5VG

+5Vd

+12V

+12VD

+12VA

-12V

-12VA

-5V

+5VA

+5VD

+5VSTB

+9V

GNDA

GNDD

N.C.

VBL

INTVIDN

BSYCHR

SCLK

STBCHR

SDATA

RESET

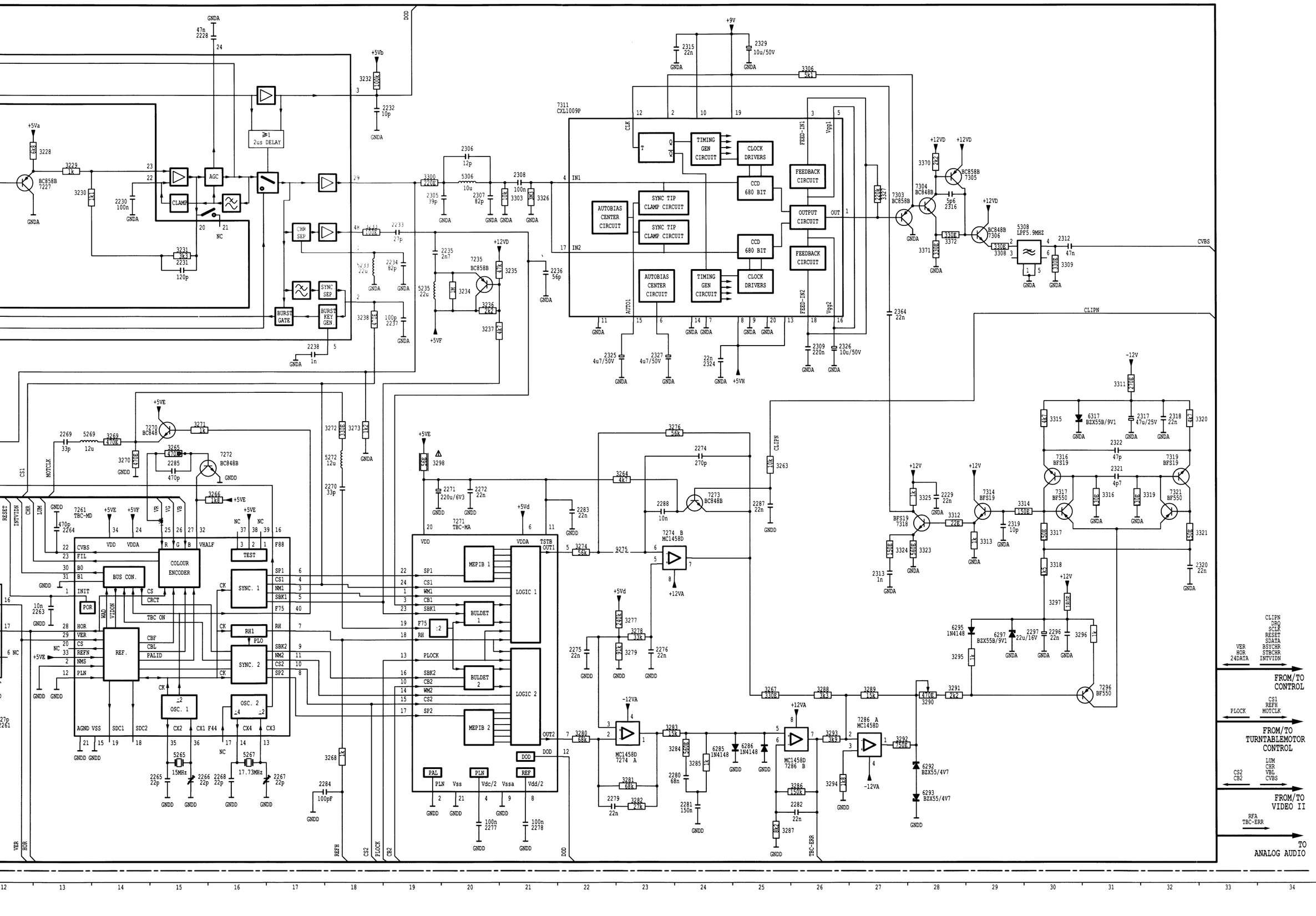
MUTCLK

CS1

DRQ

RFA

24DATA


7311 CXL1009P
CLK
FEED-IN1
FEED-IN2
Vgg1
Vgg2
AUTOBIAS CENTER CIRCUIT
SYNC TIP CLAMP CIRCUIT
TIMING GEN CIRCUIT
CLOCK DRIVERS
CCD 680 BIT
FEEDBACK CIRCUIT
OUTPUT CIRCUIT
7303 BC858B
7304 BC848B
BC858B 7305
BC848B 7306
5308 LPF5.9MHZ
CVBS
CLIPN
7270 BC848
7271 TBC-MD
7272 BC848B
7273 BC848B
7274 B MC1458D
7274 A MC1458D
7286 A MC1458D
7286 B MC1458D
7296 BF550
7316 BFS19
7317 BF550
7318 BFS19
7319 BFS19
7321 BF550
6317 BZX55B/9V1
6292 BZX55/4V7
6293 BZX55/4V7
7271 TBC-MA
COLOUR ENCODER
BUS CON.
SYNC. 1
SYNC. 2
REF.
OSC. 1
OSC. 2
MEPIB 1
MEPIB 2
BULDET 1
BULDET 2
LOGIC 1
LOGIC 2
CHR SEP
SYNC SEP
BURST GATE
BURST KEY GEN
AGC
CLAMP
2us DELAY
TEST
POR
5265 15MHz
5267 17.73MHz
FROM/TO CONTROL
FROM/TO TURNTABLEMOTOR CONTROL
FROM/TO VIDEO II
TO ANALOG AUDIO

CS 44 398

VIDEO PART II

PAL TRUCK

7212 D
TEA7650H

CLAMP
AGC
SPECIAL BURST SUPPRESSION
HALF PICT
CLAMP
SYNC. SEP.
CHR. SEP.
REF.

CVBS_TBC
CVBSGDC
VBL
LUM
CHR
CAV_CLVN
CS2
CB2
NC

5102 SFB4157
GND
DL
BPF
DLO
BPFO
IN

5111 DL701
DELAY

7112 A HEF4053

7100 BC848B
7109 BC848B
7115 BC848B
7121 BC848B
7333 BC858B
7335 BC848B
7338 BC858B
7339 BC848B
7347 BC848B
7348 BC848B
7353 BC848B
7354 BC858B
7355 BC848B
7364 BC848B
7365 BC858B

6120 BZX55/2V4
6350 BZX55C/3V6

+5VA
+5Va
+5Vb
+5Vc
+12V
+12VC
+12VD
GNDA
GNDD
GNDS

PAL TRUCK

DIGITAL AUDIO FROM

L+R

CONTROL FROM

OBS OBF BYPASS CAV-CLVN

VIDEOPART I FROM/TO

CVBS YBL LUM CHR CS2 CB2

CVBS YBL LUM CHR CS2 CB2

CAV-CLVN

CVBSGDC

TO REMOD

CVBS REMOD

L+R

+5VSTB +5VA -12V -12Vb

+12V +12VC +12Vb +12VD GNDA

BZX55C/3V6 6126 BZX55/2V4 6120 BC848B 7100 7102 7104 7106 7108 7110 7112 7115 7120 7123 7124 7125 7126 7127 7129 7130 7133 7134 7135 7136 7138 7139 7140 7141 7142 7143 7144 7145 7146 7147 7148 7149 7150 7151 7152 7153 7154 7155 7156 7157 7158 7159 7160 7161 7162 7163 7164 7165 7166 7167 7168 7169 7170 7171 7172 7173 7174 7175 7176 7177 7178 7179 7180 7181 7182 7183 7184 7185 7186 7187 7188 7189 7190 7191 7192 7193 7194 7195 7196 7197 7198 7199 7200 7201 7202 7203 7204 7205 7206 7207 7208 7209 7210 7211 7212 7213 7214 7215 7216 7217 7218 7219 7220 7221 7222 7223 7224 7225 7226 7227 7228 7229 7230 7231 7232 7233 7234 7235 7236 7237 7238 7239 7240 7241 7242 7243 7244 7245 7246 7247 7248 7249 7250 7251 7252 7253 7254 7255 7256 7257 7258 7259 7260 7261 7262 7263 7264 7265 7266 7267 7268 7269 7270 7271 7272 7273 7274 7275 7276 7277 7278 7279 7280 7281 7282 7283 7284 7285 7286 7287 7288 7289 7290 7291 7292 7293 7294 7295 7296 7297 7298 7299 7300 7301 7302 7303 7304 7305 7306 7307 7308 7309 7310 7311 7312 7313 7314 7315 7316 7317 7318 7319 7320 7321 7322 7323 7324 7325 7326 7327 7328 7329 7330 7331 7332 7333 7334 7335 7336 7337 7338 7339 7340 7341 7342 7343 7344 7345 7346 7347 7348 7349 7350 7351 7352 7353 7354 7355 7356 7357 7358 7359 7360 7361 7362 7363 7364 7365 7366 7367 7368 7369 7370 7371 7372 7373 7374 7375 7376 7377 7378 7379 7380 7381 7382 7383 7384 7385 7386 7387 7388 7389 7390 7391 7392 7393 7394 7395 7396 7397 7398 7399 7400 7401 7402 7403 7404 7405 7406 7407 7408 7409 7410 7411 7412 7413 7414 7415 7416 7417 7418 7419 7420 7421 7422 7423 7424 7425 7426 7427 7428 7429 7430 7431 7432 7433 7434 7435 7436 7437 7438 7439 7440 7441 7442 7443 7444 7445 7446 7447 7448 7449 7450 7451 7452 7453 7454 7455 7456 7457 7458 7459 7460 7461 7462 7463 7464 7465 7466 7467 7468 7469 7470 7471 7472 7473 7474 7475 7476 7477 7478 7479 7480 7481 7482 7483 7484 7485 7486 7487 7488 7489 7490 7491 7492 7493 7494 7495 7496 7497 7498 7499 7500 7501 7502 7503 7504 7505 7506 7507 7508 7509 7510 7511 7512 7513 7514 7515 7516 7517 7518 7519 7520 7521 7522 7523 7524 7525 7526 7527 7528 7529 7530 7531 7532 7533 7534 7535 7536 7537 7538 7539 7540 7541 7542 7543 7544 7545 7546 7547 7548 7549 7550 7551 7552 7553 7554 7555 7556 7557 7558 7559 7560 7561 7562 7563 7564 7565 7566 7567 7568 7569 7570 7571 7572 7573 7574 7575 7576 7577 7578 7579 7580 7581 7582 7583 7584 7585 7586 7587 7588 7589 7590 7591 7592 7593 7594 7595 7596 7597 7598 7599 7600 7601 7602 7603 7604 7605 7606 7607 7608 7609 7610 7611 7612 7613 7614 7615 7616 7617 7618 7619 7620 7621 7622 7623 7624 7625 7626 7627 7628 7629 7630 7631 7632 7633 7634 7635 7636 7637 7638 7639 7640 7641 7642 7643 7644 7645 7646 7647 7648 7649 7650 7651 7652 7653 7654 7655 7656 7657 7658 7659 7660 7661 7662 7663 7664 7665 7666 7667 7668 7669 7670 7671 7672 7673 7674 7675 7676 7677 7678 7679 7680 7681 7682 7683 7684 7685 7686 7687 7688 7689 7690 7691 7692 7693 7694 7695 7696 7697 7698 7699 7700 7701 7702 7703 7704 7705 7706 7707 7708 7709 7710 7711 7712 7713 7714 7715 7716 7717 7718 7719 7720 7721 7722 7723 7724 7725 7726 7727 7728 7729 7730 7731 7732 7733 7734 7735 7736 7737 7738 7739 7740 7741 7742 7743 7744 7745 7746 7747 7748 7749 7750 7751 7752 7753 7754 7755 7756 7757 7758 7759 7760 7761 7762 7763 7764 7765 7766 7767 7768 7769 7770 7771 7772 7773 7774 7775 7776 7777 7778 7779 7780 7781 7782 7783 7784 7785 7786 7787 7788 7789 7790 7791 7792 7793 7794 7795 7796 7797 7798 7799 7800 7801 7802 7803 7804 7805 7806 7807 7808 7809 7810 7811 7812 7813 7814 7815 7816 7817 7818 7819 7820 7821 7822 7823 7824 7825 7826 7827 7828 7829 7830 7831 7832 7833 7834 7835 7836 7837 7838 7839 7840 7841 7842 7843 7844 7845 7846 7847 7848 7849 7850 7851 7852 7853 7854 7855 7856 7857 7858 7859 7860 7861 7862 7863 7864 7865 7866 7867 7868 7869 7870 7871 7872 7873 7874 7875 7876 7877 7878 7879 7880 7881 7882 7883 7884 7885 7886 7887 7888 7889 7890 7891 7892 7893 7894 7895 7896 7897 7898 7899 7900 7901 7902 7903 7904 7905 7906 7907 7908 7909 7910 7911 7912 7913 7914 7915 7916 7917 7918 7919 7920 7921 7922 7923 7924 7925 7926 7927 7928 7929 7930 7931 7932 7933 7934 7935 7936 7937 7938 7939 7940 7941 7942 7943 7944 7945 7946 7947 7948 7949 7950 7951 7952 7953 7954 7955 7956 7957 7958 7959 7960 7961 7962 7963 7964 7965 7966 7967 7968 7969 7970 7971 7972 7973 7974 7975 7976 7977 7978 7979 7980 7981 7982 7983 7984 7985 7986 7987 7988 7989 7990 7991 7992 7993 7994 7995 7996 7997 7998 7999 8000 8001 8002 8003 8004 8005 8006 8007 8008 8009 8010 8011 8012 8013 8014 8015 8016 8017 8018 8019 8020 8021 8022 8023 8024 8025 8026 8027 8028 8029 8030 8031 8032 8033 8034 8035 8036 8037 8038 8039 8040 8041 8042 8043 8044 8045 8046 8047 8048 8049 8050 8051 8052 8053 8054 8055 8056 8057 8058 8059 8060 8061 8062 8063 8064 8065 8066 8067 8068 8069 8070 8071 8072 8073 8074 8075 8076 8077 8078 8079 8080 8081 8082 8083 8084 8085 8086 8087 8088 8089 8090 8091 8092 8093 8094 8095 8096 8097 8098 8099 8100 8101 8102 8103 8104 8105 8106 8107 8108 8109 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9110 9111 9112 9113 9114 9115 9116 9117 9118 9119 9120 9121 9122 9123 9124 9125 9126 9127 9128 9129 9130 9131 9132 9133 9134 9135 9136 9137 9138 9139 9140 9141 9142 9143 9144 9145 9146 9147 9148 9149 9150 9151 9152 9153 9154 9155 9156 9157 9158 9159 9160 9161 9162 9163 9164 9165 9166 9167 9168 9169 9170 9171 9172 9173 9174 9175 9176 9177 9178 9179 9180 9181 9182 9183 9184 9185 9186 9187 9188 9189 9190 9191 9192 9193 9194 9195 9196 9197 9198 9199 9200 9201 9202 9203 9204 9205 9206 9207 9208 9209 9210 9211 9212 9213 9214 9215 9216 9217 9218 9219 9220 9221 9222 9223 9224 9225 9226 9227 9228 9229 9230 9231 9232 9233 9234 9235 9236 9237 9238 9239 9240 9241 9242 9243 9244 9245 9246 9247 9248 9249 9250 9251 9252 9253 9254 9255 9256 9257 9258 9259 9260 9261 9262 9263 9264 9265 9266 9267 9268 9269 9270 9271 9272 9273 9274 9275 9276 9277 9278 9279 9280 9281 9282 9283 9284 9285 9286 9287 9288 9289 9290 9291 9292 9293 9294 9295 9296 9297 9298 9299 9300 9301 9302 9303 9304 9305 9306 9307 9308 9309 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9710 9711 9712 9713 9714 9715 9716 9717 9718 9719 9720 9721 9722 9723 9724 9725 9726 9727 9728 9729 9730 9731 9732 9733 9734 9735 9736 9737 9738 9739 9740 9741 9742 9743 9744 9745 9746 9747 9748 9749 9750 9751 9752 9753 9754 9755 9756 9757 9758 9759 9760 9761 9762 9763 9764 9765 9766 9767 9768 9769 9770 9771 9772 9773 9774 9775 9776 9777 9778 9779 9780 9781 9782 9783 9784 9785 9786 9787 9788 9789 9790 9791 9792 9793 9794 9795 9796 9797 9798 9799 9800 9801 9802 9803 9804 9805 9806 9807 9808 9809 9810 9811 9812 9813 9814 9815 9816 9817 9818 9819 9820 9821 9822 9823 9824 9825 9826 9827 9828 9829 9830 9831 9832 9833 9834 9835 9836 9837 9838 9839 9840 9841 9842 9843 9844 9845 9846 9847 9848 9849 9850 9851 9852 9853 9854 9855 9856 9857 9858 9859 9860 9861 9862 9863 9864 9865 9866 9867 9868 9869 9870 9871 9872 9873 9874 9875 9876 9877 9878 9879 9880 9881 9882 9883 9884 9885 9886 9887 9888 9889 9890 9891 9892 9893 9894 9895 9896 9897 9898 9899 9900 9901 9902 9903 9904 9905 9906 9907 9908 9909 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DIGITAL AUDIO

7500
M50423P

DATA SLICER
DEMOD TIMING
EFM DECODER
SUBCODE PROCESSOR
Q CHANNEL PROCESSOR
uP INTERFACE
START/ STOP TIMER
PWM
CLV SERVO CONTROL
2/3 DISC SPEED DETECTOR
FIFO CONTROL & RAM INTERFACE
FREQ & FASE DETECTOR
PHASE & FREQUENCY DETECTOR
V.C.O.
C2 INTERLEAVER CORRECTOR DESCRAMBLER
C2 INTERLEAVER CORRECTOR DESCRAMBLER
INTERPOLATOR
2x/4x UPSAMPLING DIGITAL FILTER
OUTPUT STAGE
ADAPTIVE FLAG PROCESSOR
ERROR STATUS
DIGITAL OUTPUT
TIMING GENERATOR
1/2
TEST CONTROL
RAM INTERFACE

EFM
EST2
HF
TLC
HFD
LPF
IREF
TIMING
CONTROL
ADDRESS
DATA & FLAG
DRD
LOCK/DRD
APTL
APTR
WDCK
LRCK
DLRCK
DSCK
DO2
DO1
C16MI
C8MO
TEST1
NC NC NC
CAS RAS
VSS1 VSS2
GNDD GNDD
+5VDD1 GNDD
+5VDD1 +5VDD1
VDD1 VDD2
SQRO SQRCK SCLNT
MSD MCK MLA
ACLR
RESETN
MCES
PWM1 PWM2
SCOR SBCK SBCQ SBCR SBCS SBCT SBCU SBCV SBCW
SCLK EFFK
SCOR1 SCOR2
DASEL1 DASEL2 DASEL3 DASEL4 DOBSEL
ACRCY DOFK
C446 C4Q3 ESCK DOFK XOUT XIN
EST1 EST2
RAS CAS WE RAD0 RAD1 RAD2 RAD3 RAD4 RAD5 RAD6 RAD7 RDB1 RDB2 RDB3 RDB4
A0 A1 A2 A3 A4 A5 A6 A7 D1 D2 D3 D4
R/W

7506
MN4264

5506
opt

5530
DSS306-91

5532
DSS306-91

7534
TDA1543

INPUT REGISTER
16 BIT D/A
16 BIT D/A
REF
AOR
AOL
VREF
WS
BCK
DATA
WDCK

7537 B
HEF4053B

7540
BC848B

7543 A
LM833

7543 B
LM833

7547 A
LM833

7547 B
LM833

7524 A
LM833

7524 B
LM833

7507
BC848B

7519
BC848B

7520
BC848B

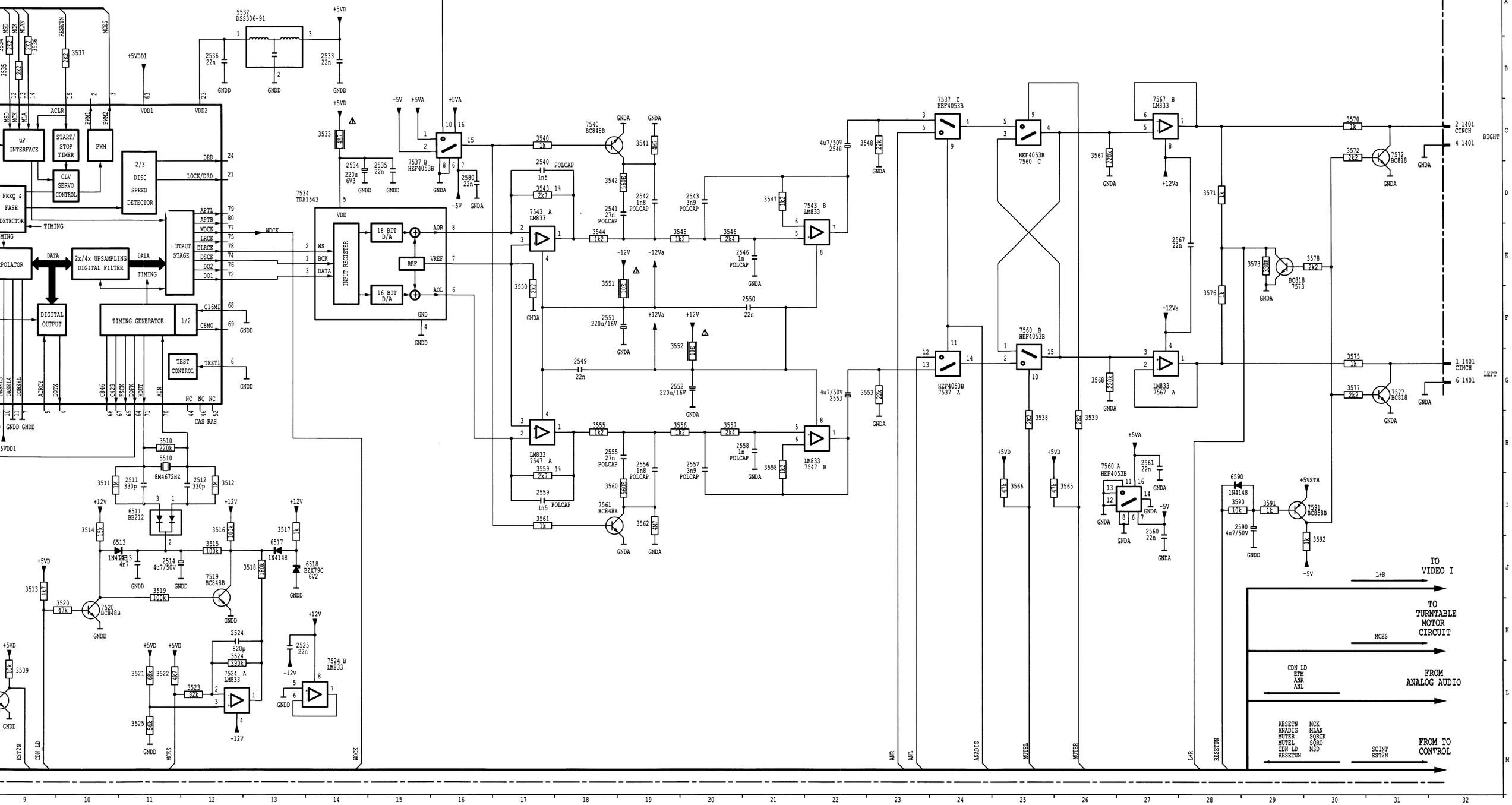
NOT IN USE
1 1014 EST2
2 1014 EST1
3 1014 DOFK
4 1014 GNDD
5 1014 WOCK

+5VD
+5VA
-5V
+12V
-12V
+12Va
-12Va
GNDD
GNDA

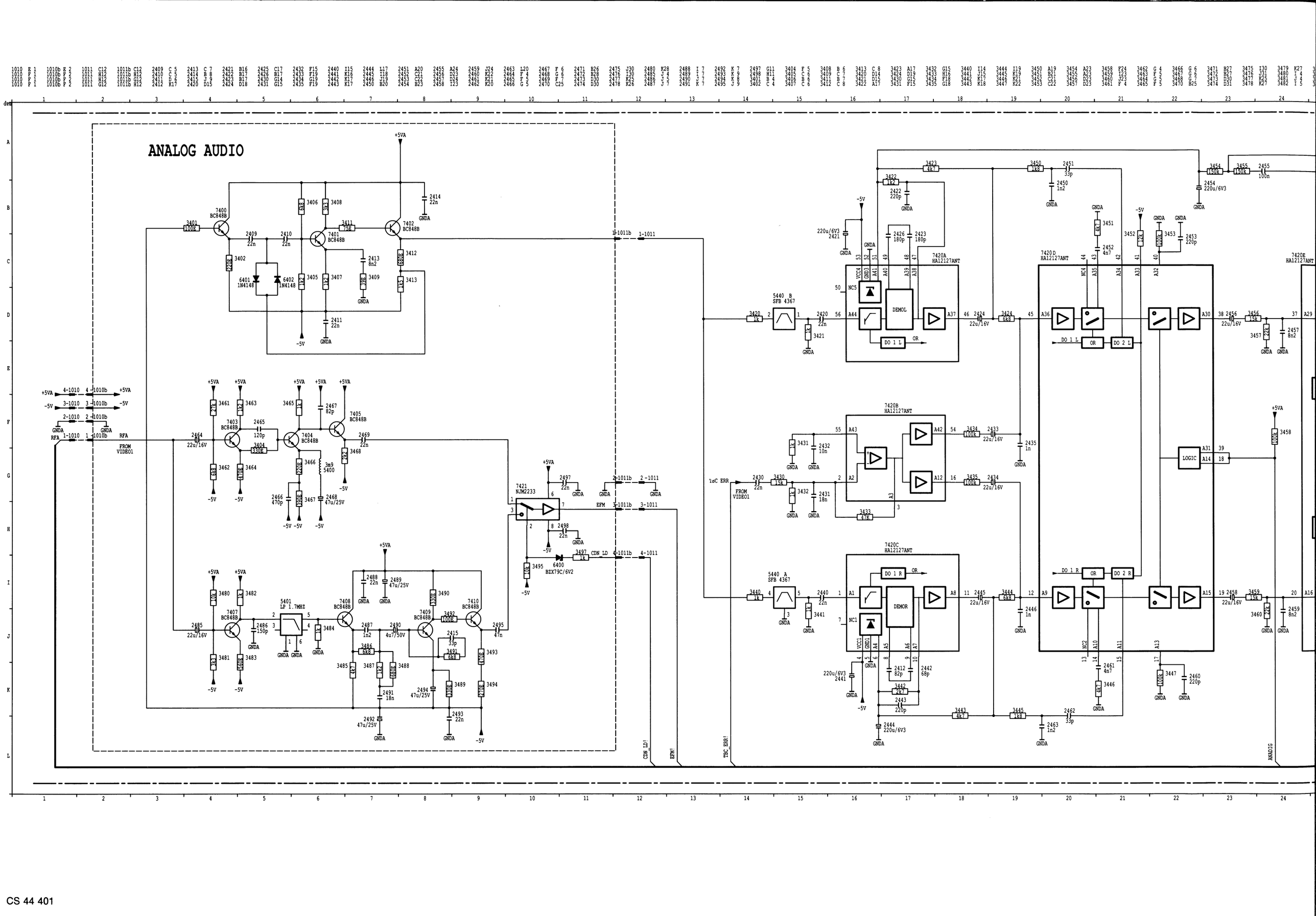
EST1
EST2
DOFK
EST2N
CDN_LD
MCES
WOCK
ANR

9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

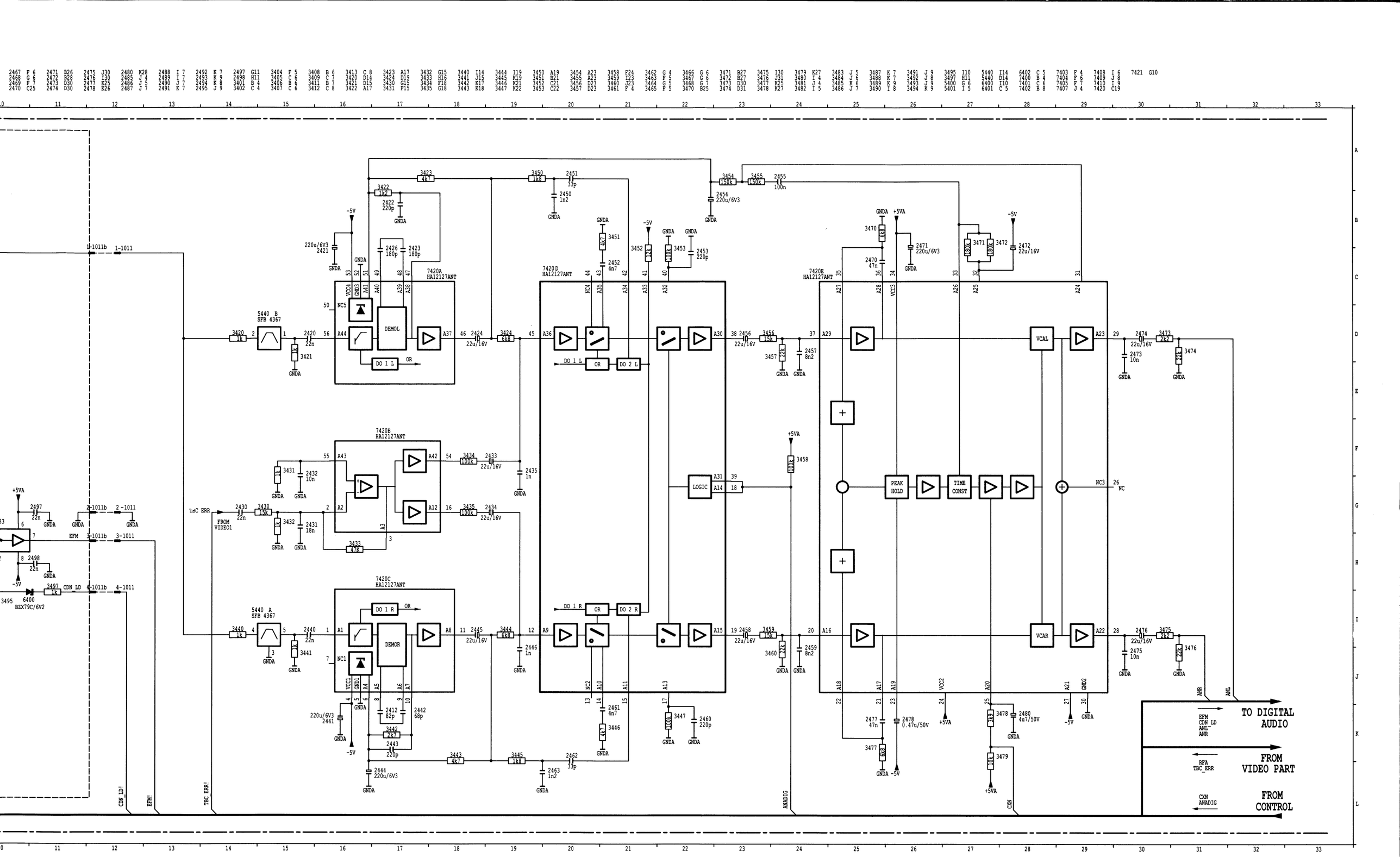
A B C D E F G H I J K L M

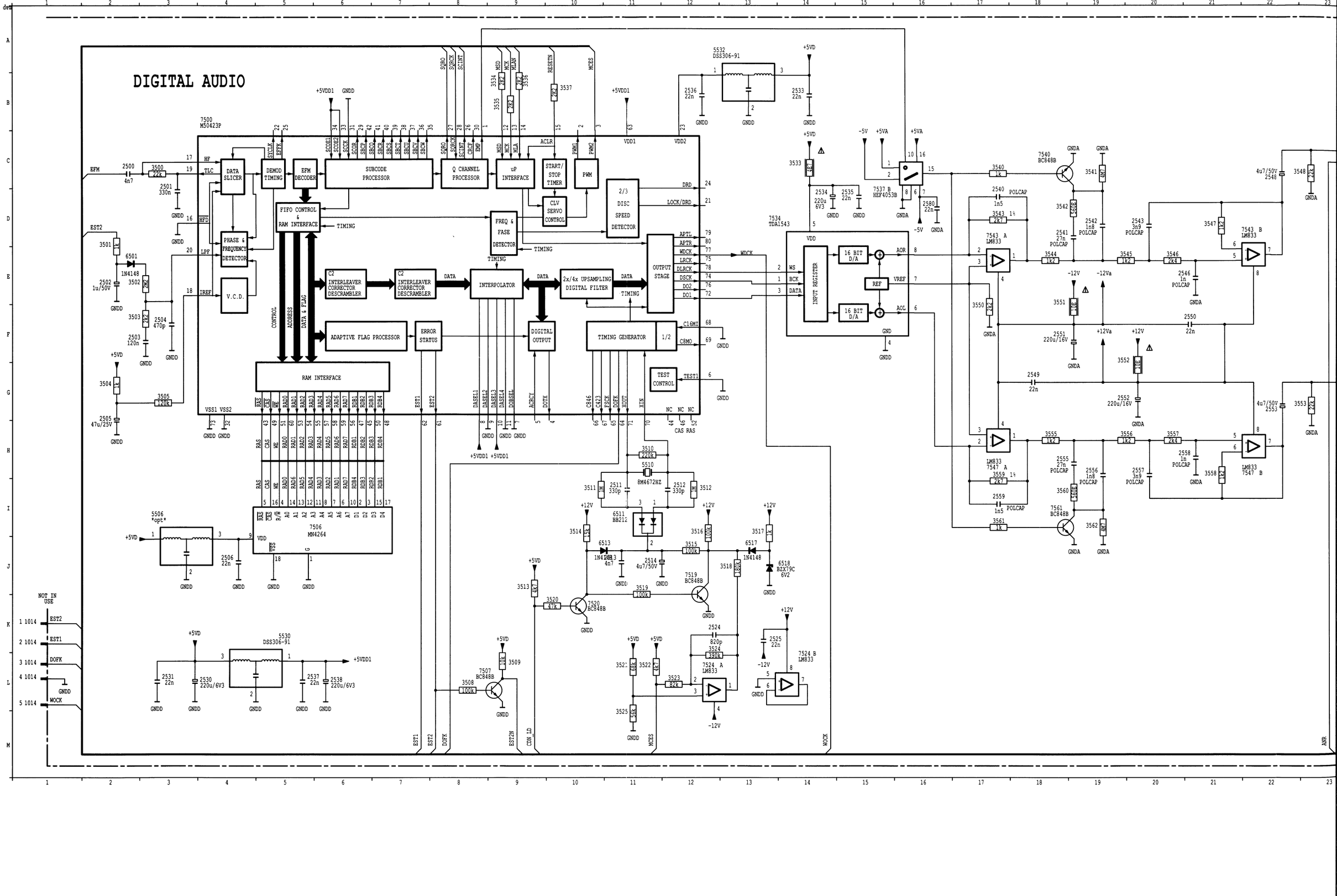


ANALOG AUDIO



CS 44 401


7420A HA12127ANT
7420B HA12127ANT
7420C HA12127ANT
7420D HA12127ANT
7420E HA12127ANT
5440 B SFB 4367
5440 A SFB 4367
DEMOL
DEMOR
DO 1 L
DO 2 L
DO 1 R
DO 2 R
OR
LOGIC
PEAK HOLD
TIME CONST
VCAL
VCAR
+5VA
-5V
GNDA
1-1011b 1-1011
2-1011b 2-1011
3-1011b 3-1011
4-1011b 4-1011
EFM
CDN_LD
BZX79C/6V2
TBC_ERR
FROM VIDEO1
TO DIGITAL AUDIO
EFM
CDN LD
ANL
ANR
FROM VIDEO PART
RFA
TBC_ERR
FROM CONTROL
CXN
ANADIG


DIGITAL AUDIO
7500 M50423P
DATA SLICER
DEMOD TIMING
EFM DECODER
SUBCODE PROCESSOR
Q CHANNEL PROCESSOR
uP INTERFACE
START/ STOP TIMER
PWM
FIFO CONTROL & RAM INTERFACE
PHASE & FREQUENCY DETECTOR
V.C.D.
FREQ & FASE DETECTOR
CLV SERVO CONTROL
2/3 DISC SPEED DETECTOR
C2 INTERLEAVER CORRECTOR DESCRAMBLER
INTERPOLATOR
2x/4x UPSAMPLING DIGITAL FILTER
OUTPUT STAGE
ADAPTIVE FLAG PROCESSOR
ERROR STATUS
DIGITAL OUTPUT
TIMING GENERATOR
TEST CONTROL
RAM INTERFACE
7506 MN4264
5532 DSS306-91
5530 DSS306-91
7537 B HEF4053B
7534 TDA1543
INPUT REGISTER
16 BIT D/A
REF
7543 A LM833
7543 B LM833
7547 A LM833
7547 B LM833
7524 A LM833
7524 B LM833
7540 BC848B
7561 BC848B
7519 BC848B
7520 BC848B
7507 BC848B
6511 BB212
6518 BZX79C 6V2
NOT IN USE
EST2
EST1
DOFK
WOCK
+5VD
+5VDD1
+5VA
-5V
+12V
-12V
+12Va
-12Va
GNDD
GNDA

TURNTABLEMOTOR CIRCUIT

FROM/TO CONTROL PART

DOUT MV1 MH1 TACHO — SDATA SCLK RNW RESET FG

FROM/TO VIDEO PART 1

PLOCK — MOTCLK REFH CS1

FROM DIGITAL AUDIO

MCES

CS1 REFH MCES MH1 MV1 PLOCK RESET RNW SCLK SDATA MOTCLK

2606 180p GNDD
2607 180p GNDD
2608 180p GNDD

3606 4.7k2 3607 4.7k2 3608 4.7k2

+5VM 3602 2k2 3603 33k 2603 10n GNDD 3604 270k 3605 22k
+2,5V 6604 1N4148 6605 1N4148
2604 6u8/50V GNDD

+12VM 2623 22n GNDD
7615 B MC34004BP 4 6 5 7 11 GNDD
-12VM

7600 DSC-M2 C
SW1 34 SMF
S1 44 CBW1
S6 37 S4 39 CDV

+5VM 6620 1N4148 +12VM 3620 100k
+2.5V 3621 1k 2620 1n5 GNDD
6621 1N4148 6622 1N4148
2621 47u/25V 3622 10k
+2,5V 3623 33k 2622 1n
3624 100k
7615 D MC34004BP 13 12 14
3625 47k

7615 A MC34004BP 3 2 1
3626 5k6
6626 1N4148
3627 4k7 2627 27p GNDD GNDD
33 PWM

+5VM 2640 22n GNDD
7600 DSC-M2 D 43 50 51 54 56 TACHO 61 14
VCC1
55 F75
57 PLN GNDD
6 DIN
4 SCKN
3 RNW
60 RESET

CONTROL & TIMING
C2 C4 C7 C8 C14 C20
CONTROLLER 4 BYTES

PLAY	REF0	-	TD1
ETL	REF1	PR1	TD2
CDV	REF2	PR2	TO1
EFL	REF3	PR3	TO2
HOLD	REF4	PR4	D1
STOP	REF5	CBW1	D2
START	REF6	CBW2	ESTOP

PWM
RESET
START
STOP
PLAT
ESTOP

INPUT INTERFACE

7600 DSC-M2 A
INPUT INTERFACE
SYNC PROTECTION
MPLL OSP
SYNC DETECTOR COMPARATOR
MHI 2
MVI 1
PHLOCK PHLOCK 49
PHASE ERR
FREQ ERR
EFL
50% DUTYC
HOLD
3600 470E 53 CSYNC1
3601 470E 52 RHI
2600 180p GNDD
40 15 16 17 18 19 30 31 32
REF0 — REF6
TACHO PHLOCK
MPE 35 CBT
MFE 36 ETL
3609 100k 3611 100k 2609 22n GNDD
3610 1k8 3612 1k8
2610 330n GNDD

+2,5V 7615 C MC34004BP 10 9 8 3615 1k
6608 1N4148 6609 1N4148
2611 4u7/25V 3614 68k 41 7600 DSC-M2 B 42 CBW2
+5VM 6615 1N4148 6614 1N4148 GNDD

-12V 3616 10E -12VM 2602 47u/25V GNDD

5640 DSS306-91
+12V 1 3 +12VM 2 GNDD

5641 DSS306-91
+5VD 1 3 +5VM 2 GNDD 2641 22n GNDD 2642 47u/25V GNDD

+5VM 3640 1k +2,5V 3641 1k 2643 22n GNDD 2644 47u/25V GNDD

+5VM 3628 10k
10 HALLA
11 HALLB GNDD
12 HALLC GNDD
D1 D2
TOK ZRPM REV
TACHO CONTR
TACHO

TURNTABLEMOTOR CIRCUIT

MHI
MVI
PLOCK
RESET
RNW
SCLK
SDATA
MOTCLK
DOUT
TACHO
FG

7600 DSC-M2 D
VCC1
VCC2
CONTROL & TIMING
C2 C4 C7 C8 C14 C20
CONTROLLER 4 BYTES
OUTPUT INTERFACE
PLAY REP0 - TD1
ETL REP1 PR1 TD2
CDV REP2 PR2 TO1
EFL REP3 PR3 TO2
HOLD REP4 PR4 D1
STOP REP5 CBW1 D2
START REP6 CBW2 ESTOP
MPLL PLOCK ZRPM OSP REV TOK TD1 TD2
SLOPE SET
ACC/BLAKE CURR SET
CURRENT LIMITER
OPERATION CONTROL
START
STOP
PLAT
ESTOP
COMMUTATOR BLOCK
INPUT INTERFACE
PWM
RESET
DELAY SET
D1
D2
TOK
ZRPM
REV
TACHO CONTR
TACHO
TACMIC
TADC
GND1 GND2 GND3 TEST RLS GND4

55 F75
57 PLN
6 DIN
4 SCKN
3 RNW
60 RESET
33 PWM
10 HALLA
11 HALLB
12 HALLC
9 NC
21 NC
24 NC
28 NC
62 DOUT
63 SCLK
64 RNW
5 DOUT
27 NC
29 DAP
25 DBP
23 NC
INHIBA
INHIBB
22 NC
DCP
20 NC
INHIBC
7 NC
TACMIC

DBN 13 1301
DAN 11 1301
DAP 10 1301
DBP 12 1301
TO POWER SUPPLY (SPINDEL DRIVE)

7615.A MC34004BP
7615.B MC34004BP
7615.C MC34004BP
7615.D MC34004BP
7635 BC848B
5640 DSS306-91
5641 DSS306-91

SMF
CBW1
CDV
CBT
MPE
ETL
CBW2

+12VM
-12VM
+5VM
+2,5V
-12V
+5VD
GNDD

CONTROL PART

FROM MECHA
1 1004
2 1004
3 1004
4 1004
5 1004
6 1004
7 1004
8 1004
9 1004
FG
PARK
ROTB
ROTC1
ROTC2
ROTA
MV1
MH1
DRQ
9799
3700 150K
3701 10K
3702 10K
3703 10K
+5VD
GNDD
2705 33p
3705 4K7
3706 10K
3707 68K
2706 15n
BC848

FROM TO MECHA
1 1003
2 1003
3 1003
4 1003
POSCNT1
POSCNT2
2798 22n
24DATA
3760 10K
2760 470p
3761 1K8
3760 BC848

RESETUN
MCK
MLAN
SQRCK
SQRO
RESETN
MSD
ANADIG
MUTER
MUTEL
CDN_LD
EST2N
SCINT
FROM TO AUDIO PART

CLIPN
STBCHR
BSYCHR
SCLK
SDATA
RESET
INTVIDN
DRQ
VER
HOR
24DATA
FROM TO VIDEO PART1

CXN
ANADIG
TO ANALOG AUDIO PART

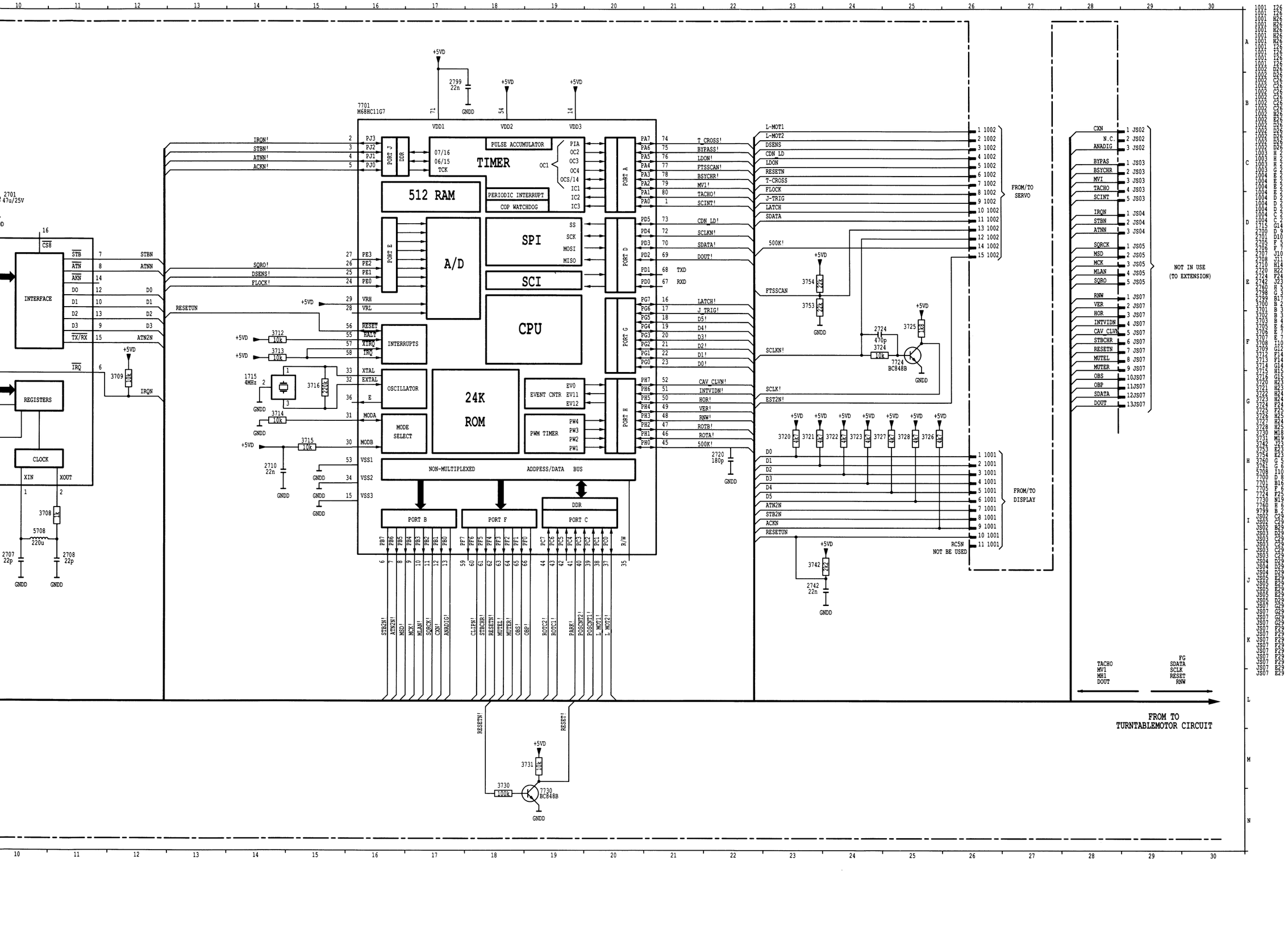
CAV CLVN
BYPASS
OBP
OBS
TO VIDEO PART II

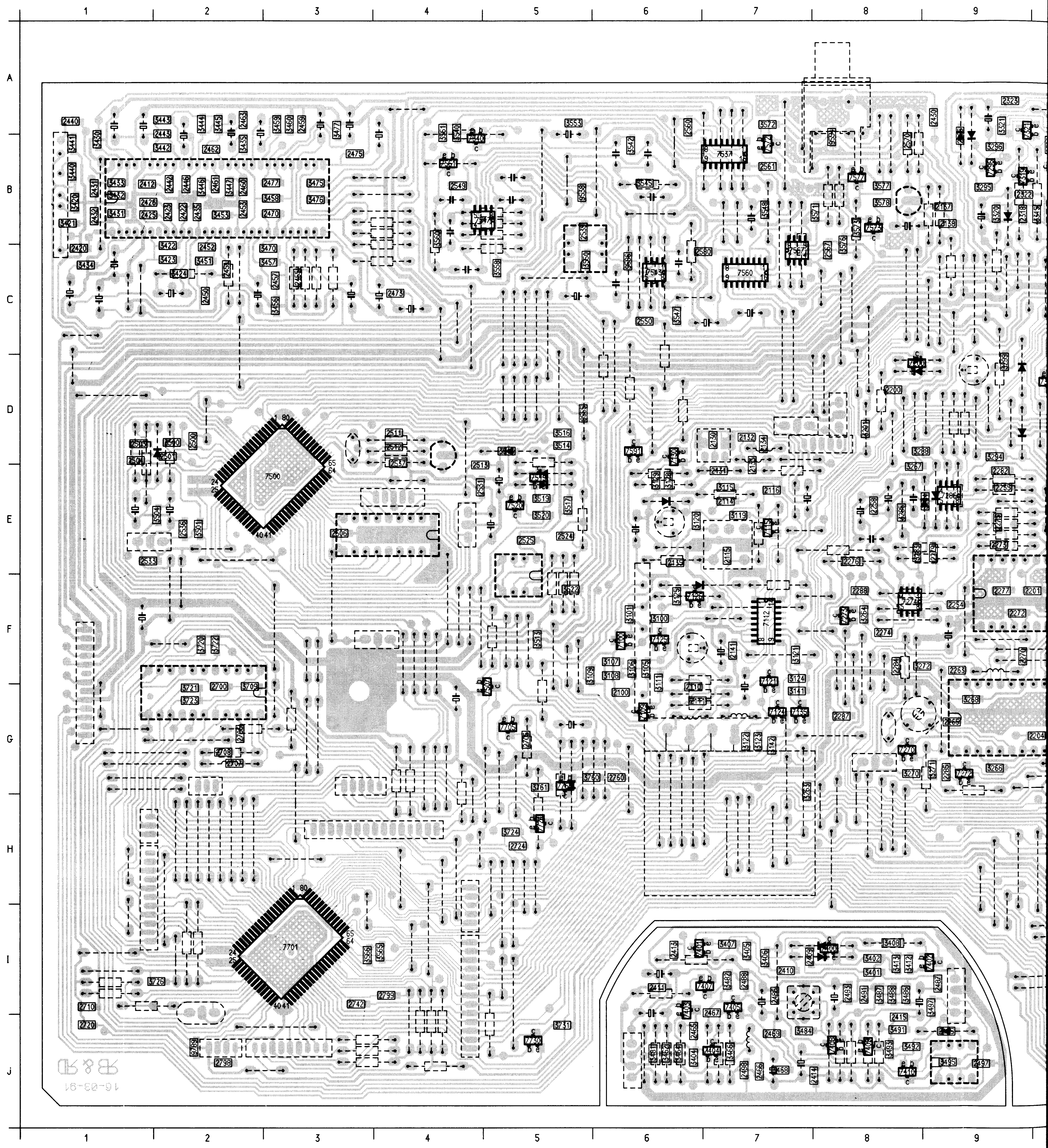
7700
PD0011
2700 22n
2701 47u/25V
VDD
I/O
I/O0
I/O1
I/O2
I/O3
VSYNC
DOCINH
HSYNC
DATA
TIMING GENERATOR
24 BITS DECODER
DATA RAM
REGISTERS
CLOCK
INTERFACE
CS8
STB
ATN
AKN
D0
D1
D2
D3
TX/RX
IRQ
STBN
ATNN
ATN2N
3709 10K
IRQN
GND
XIN
XOUT
3708 1K
5708 220u
2707 22p
2708 22p

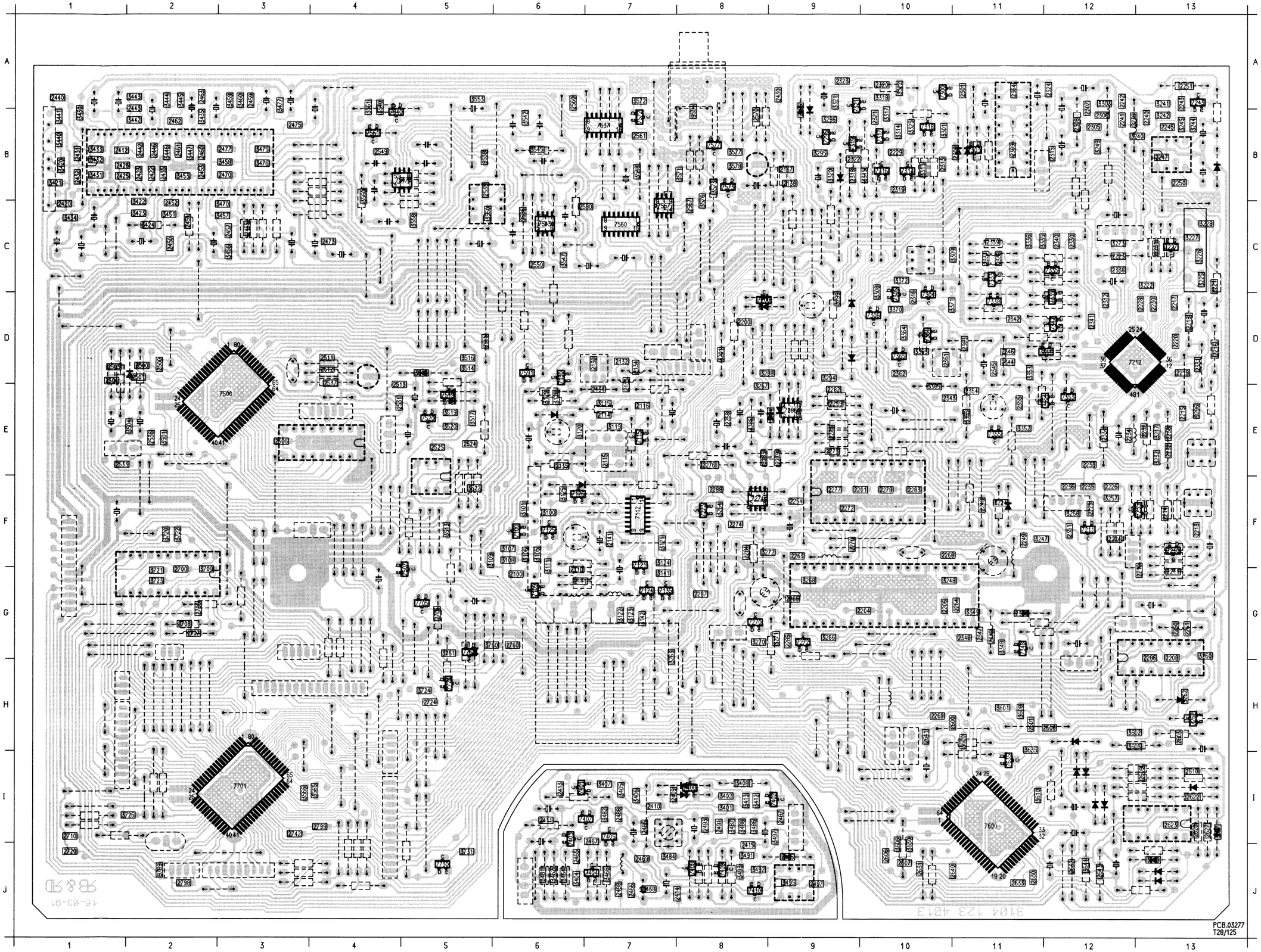
7701
M68HC11G7
2799 22n
VDD1
VDD2
VDD3
IRQN!
STBN!
ATNN!
ACKN!
SQRO!
DSENS!
FLOCK!
RESETUN
PJ3
PJ2
PJ1
PJ0
PORT J
DDR
07/16
06/15
TCK
TIMER
PULSE ACCUMULATOR
PERIODIC INTERRUPT
COP WATCHDOG
PIA
OC2
OC3
OC4
OCS/14
IC1
IC2
IC3
OC1
512 RAM
A/D
SPI
SS
SCK
MOSI
MISO
SCI
CPU
PE3
PE2
PE1
PE0
PORT E
VRH
VRL
RESET
HALT
XIRQ
IRQ
INTERRUPTS
XTAL
EXTAL
E
OSCILLATOR
MODA
MODB
MODE SELECT
24K ROM
EVENT CNTR
EV0
EV11
EV12
PWM TIMER
PW4
PW3
PW2
PW1
VSS1
VSS2
VSS3
NON-MULTIPLEXED ADDPESS/DATA BUS
PORT A
PORT B
PORT C
PORT D
PORT F
PORT G
PORT H
PA7 T_CROSS!
PA6 BYPASS!
PA5 LDON!
PA4 FTSSCAN!
PA3 BSYCHR!
PA2 MV1!
PA1 TACHO!
PA0 SCINT!
PD5 CDN_LD!
PD4 SCLKN!
PD3 SDATA!
PD2 DOUT!
PD1 TXD
PD0 RXD
PG7 LATCH!
PG6 J_TRIG!
PG5 D5!
PG4 D4!
PG3 D3!
PG2 D2!
PG1 D1!
PG0 D0!
PH7 CAV_CLVN!
PH6 INTVIDN!
PH5 HOR!
PH4 VER!
PH3 RNW!
PH2 ROTB!
PH1 ROTA!
PH0 500K!
PB7 STB2N!
PB6 ATN2N!
PB5 MSD!
PB4 MCK!
PB3 MLAN!
PB2 SQRCK!
PB1 CXN!
PB0 ANADIG!
PF7 CLIPN!
PF6 STBCHR!
PF5 RESETN!
PF4 MUTEL!
PF3 MUTER!
PF2 OBS!
PF1 OBP!
PF0 BYPASS!
PC7 ROTC2!
PC6 ROTC1!
PC5 PARK!
PC4 POSCNT2!
PC3 POSCNT1!
PC2 L_MOT1!
PC1 L_MOT2!
PC0 R/W
3712 10K
3713 10K
3714 10K
3715 10K
1715 4MHz
3716 220K
2710 22n
2720 180p
3731 10K
3730 100K
3730 BC848B
RESETN!
RESET!

L-MOT1
L-MOT2
DSENS
CDN_LD
LDON
RESETN
T-CROSS
FLOCK
J-TRIG
LATCH
SDATA
500K!
FTSSCAN
3754 22K
3753 22K
SCLKN!
SCLK!
EST2N!
3720 3721 3722 3723 1K
D0
D1
D2
D3
D4
D5
ATN2N
STB2N
ACKN
RESETUN
3742 2K2
2742 22n

CS 44 403

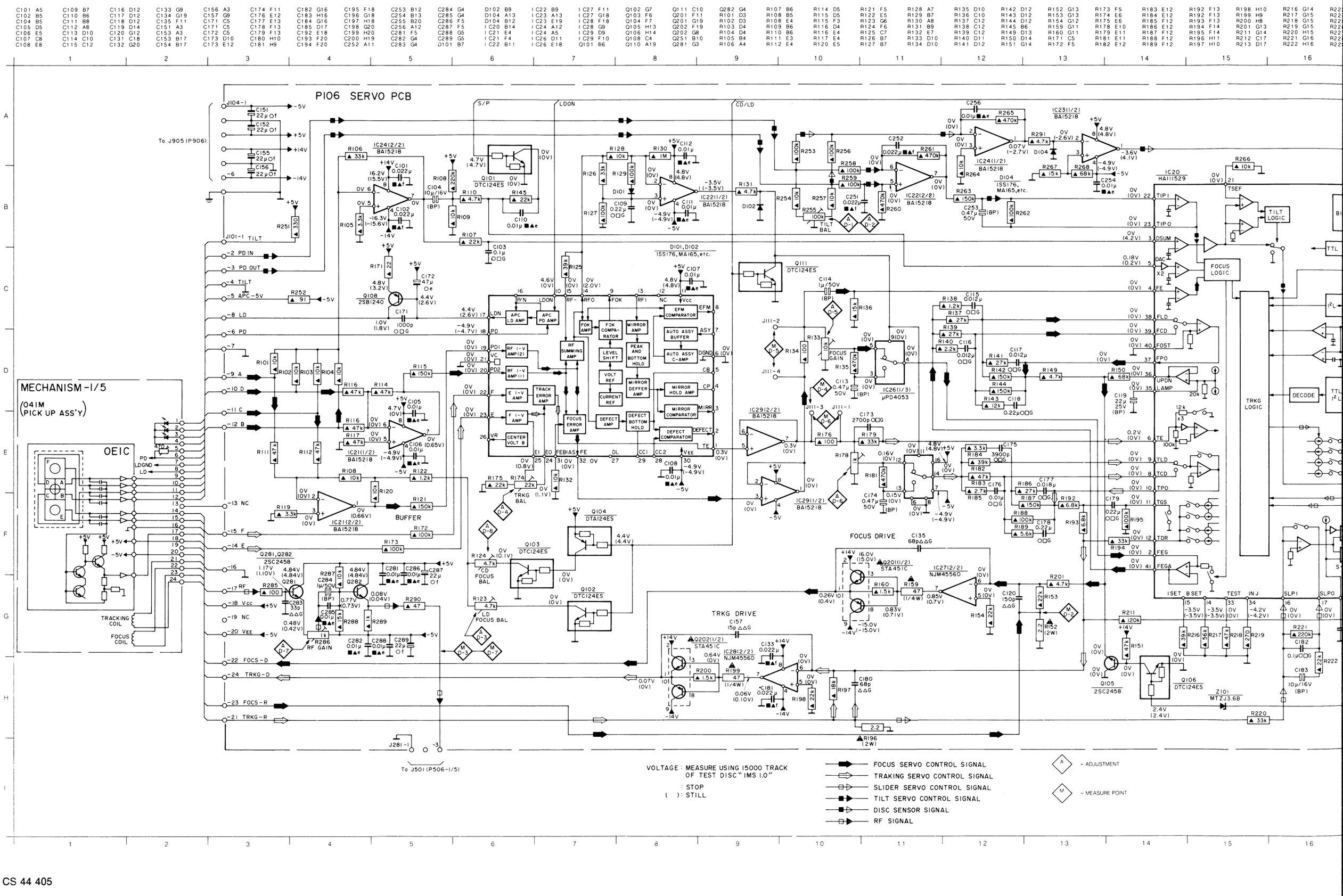

7701
M68HC11G7
VDD1
VDD2
VDD3
+5VD
2799
22n
GNDD
PULSE ACCUMULATOR
TIMER
07/16
06/15
TCK
PIA
OC2
OC3
OC4
OCS/14
IC1
IC2
IC3
OC1
512 RAM
PERIODIC INTERRUPT
COP WATCHDOG
A/D
SPI
SS
SCK
MOSI
MISO
SCI
CPU
INTERRUPTS
OSCILLATOR
MODE SELECT
24K
ROM
EVENT CNTR
EV0
EV11
EV12
PWM TIMER
PW4
PW3
PW2
PW1
NON-MULTIPLEXED ADDRESS/DATA BUS
PORT A
PORT B
PORT C
PORT D
PORT E
PORT F
PORT G
PORT H
DDR
IRQN!
STBN!
ATNN!
ACKN!
SQRO!
DSENS!
FLOCK!
RESETUN
T_CROSS!
BYPASS!
LDON!
FTSSCAN!
BSYCHR!
MVI!
TACHO!
SCINT!
CDN_LD!
SCLKN!
SDATA!
DOUT!
TXD
RXD
LATCH!
J_TRIG!
D5!
D4!
D3!
D2!
D1!
D0!
CAV_CLVN!
INTVIDN!
HOR!
VER!
RNW!
ROTB!
ROTA!
500K!
L-MOT1
L-MOT2
DSENS
CDN_LD
LDON
RESETN
T-CROSS
FLOCK
J-TRIG
LATCH
SDATA
FROM/TO SERVO
FROM/TO DISPLAY
NOT IN USE (TO EXTENSION)
CXN
N.C
ANADIG
BYPAS
BSYCHR
MVI
TACHO
SCINT
IRQN
STBN
ATNN
SQRCK
MSD
MCK
MLAN
SQRO
RNW
VER
HOR
INTVIDN
CAV_CLVN
STBCHR
RESETN
MUTEL
MUTER
OBS
OBP
SDATA
DOUT
RC5N
NOT BE USED
TACHO
MVI
MHI
DOUT
FG
SDATA
SCLK
RESET
RNW
FROM TO
TURNTABLEMOTOR CIRCUIT
INTERFACE
REGISTERS
CLOCK
XIN
XOUT
CS8
STB
ATN
AKN
D0
D1
D2
D3
TX/RX
IRQ
STBN
ATNN
ATN2N
RESETN
IRQN
1715
4MHz
3716
220k
3708
1k
5708
220u
2707
22p
2708
22p
2701
47u/25V
2710
22n
2720
180p
2724
470p
3724
10k
7724
BC848B
3725
1k
3754
22k
3753
22k
3742
2k2
2742
22n
3731
10k
3730
100k
7730
BC848B
3720
3721
3722
3723
3727
3728
3726
2k2





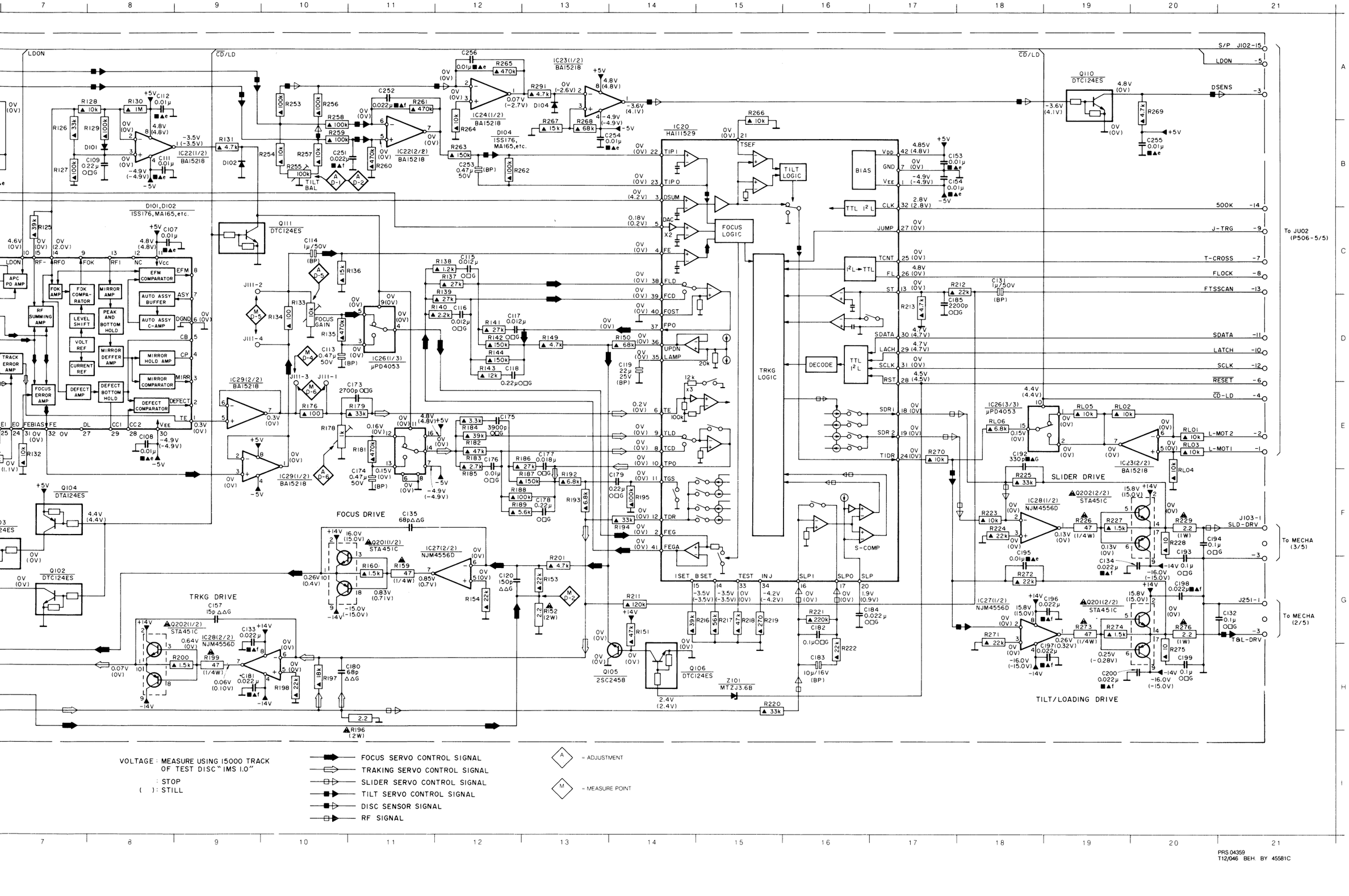
2100	G6	2430	A9	3284	E9	7109	G6
2110	G6	2431	B1	3285	E8	7112	F7
2111	G6	2432	B1	3288	D8	7115	E7
2114	E7	2435	B2	3294	D9	7121	G7
2115	E7	2440	A1	3295	B9	7124	G7
2116	E7	2442	B2	3296	B9	7125	F6
2130	D7	2443	B2	3299	D9	7126	F6
2131	E7	2446	B2	3301	B10	7130	E6
2132	E7	2450	C2	3302	C11	7135	G7
2133	E7	2451	C2	3308	D10	7200	D8
2134	D7	2452	C2	3309	C11	7210	F13
2135	E6	2453	B2	3313	B10	7211	F12
2137	B9	2455	C3	3314	B10	7212	D12
2138	B9	2457	C3	3315	B10	7227	C13
2141	F7	2459	A3	3317	B10	7235	F13
2200	D8	2460	B2	3318	A10	7243	A13
2201	F9	2461	B2	3320	B9	7262	H13
2204	A9	2462	B2	3321	A9	7270	G8
2206	G10	2463	A2	3322	A10	7272	G9
2208	H13	2465	J6	3325	B10	7273	F8
2210	G13	2466	J7	3335	C12	7274	F8
2211	G13	2467	J7	3336	C11	7286	E9
2213	F13	2468	J7	3348	G11	7296	B9
2214	F13	2470	B3	3349	G11	7300	A10
2215	E13	2473	C4	3352	E11	7303	B11
2216	D13	2475	B3	3353	D11	7304	D10
2217	D13	2477	B3	3355	E11	7305	D10
2218	D13	2486	I7	3363	D10	7306	D10
2219	D13	2487	I9	3364	D10	7314	B10
2220	D13	2488	I7	3365	E10	7316	B10
2221	D13	2491	I8	3370	D10	7317	B10
2223	C12	2493	I8	3371	D11	7318	B10
2224	F12	2495	J9	3372	C12	7319	B9
2225	F12	2497	J9	3401	I8	7321	B9
2226	F12	2498	J7	3402	I8	7333	C11
2228	D13	2500	D2	3404	J6	7335	C12
2229	B10	2501	D2	3405	I7	7338	D11
2230	D13	2503	D1	3406	I7	7339	D12
2231	C13	2504	D1	3407	I7	7344	D11
2232	E13	2506	E3	3408	I8	7347	D12
2233	E12	2511	D4	3412	I8	7348	G11
2234	F12	2512	D4	3413	I8	7353	E12
2235	F12	2513	E4	3420	B1	7354	E12
2236	F12	2524	E5	3421	B1	7355	E11
2237	E13	2525	E5	3422	C2	7364	D10
2238	E13	2531	E6	3423	C2	7365	D10
2239	D13	2532	E1	3424	C2	7400	I8
2240	B13	2535	B5	3430	B1	7401	I7
2241	B12	2536	E2	3431	B1	7402	I9
2242	A12	2537	E4	3432	B1	7403	J6
2243	B13	2548	B4	3433	B1	7404	J7
2244	C13	2550	C5	3434	C1	7405	I7
2247	B13	2560	B6	3435	B2	7407	I6
2248	F11	2561	B7	3440	B1	7408	J8
2249	F11	2567	C8	3441	B1	7409	J8
2250	B13	2570	B8	3442	B2	7410	J8
2251	A13	2572	C6	3443	A2	7500	E3
2254	F9	2600	H11	3444	A2	7507	G5
2255	E9	2601	H11	3445	A2	7519	E5
2258	E8	2603	H13	3446	B2	7520	E5
2260	G13	2605	J10	3447	B2	7537	B7
2261	G13	2606	J10	3450	C2	7540	B4
2263	F9	2608	H12	3453	B2	7543	C6
2264	G11	2609	I13	3456	C3	7547	B4
2265	G9	2610	I13	3457	C2	7560	C7
2268	I10	2620	I13	3458	B3	7561	B4
2269	H10	2622	I13	3459	A3	7567	C7
2270	F9	2623	I13	3460	A3	7572	B7
2272	F9	2627	I13	3462	J6	7573	B8
2273	E9	2630	J11	3464	J6	7577	B8
2274	F8	2631	J10	3466	J7	7591	D6
2275	E9	2632	J12	3468	J7	7600	I11
2276	E8	2633	J12	3470	C2	7635	I11
2277	F9	2640	J11	3475	B3	7701	I3
2278	F10	2641	H10	3476	B3	7705	G5
2279	E9	2643	J12	3477	B3	7724	H5
2282	E9	2700	G2	3481	J6	7730	J5
2283	F10	2705	G2	3482	I7	7760	G5
2284	F8	2706	G2	3484	J7	9296	E13
2285	G9	2707	G2	3486	I8	9538	B5
2286	H13	2708	G2	3487	I8	9554	B8
2287	G8	2710	I1	3488	I8	9555	D5
2288	F8	2720	J11	3491	J8	9586	C6
2296	B9	2724	H5	3492	J8	9789	J2
2300	B11	2742	I3	3493	J8		
2301	A11	2760	G6	3495	J9		
2305	B12	2798	J2	3497	J9		
2306	B12	2799	I4	3500	D2		
2307	B12	3100	F6	3501	E2		
2308	B12	3101	F6	3504	E2		
2309	B11	3105	F6	3513	F5		
2312	D12	3106	F6	3514	D5		
2313	B10	3107	F6	3515	D5		
2315	B12	3108	F6	3516	D5		
2316	D10	3109	F6	3517	E5		
2318	B9	3111	G6	3519	E5		
2319	B10	3115	E7	3520	E5		
2320	A10	3119	E7	3522	F5		
2321	B10	3120	E6	3540	B4		
2322	B9	3121	F7	3542	B6		
2323	A9	3122	G7	3545	B6		
2324	A12	3123	G7	3547	C6		
2330	C12	3124	F7	3548	B7		
2331	D13	3125	F6	3550	C5		
2334	E12	3128	E6	3553	A5		
2336	C12	3129	E6	3558	C5		
2337	C11	3141	G7	3560	C4		
2338	C11	3142	G7	3561	B4		
2339	C11	3201	D8	3565	I4		
2340	C12	3217	E13	3566	I3		
2341	D12	3222	C13	3571	B8		
2342	D11	3224	F13	3572	A7		
2343	E10	3225	C13	3573	B8		
2344	D11	3226	C13	3576	C8		
2345	D11	3227	C13	3577	B8		
2346	D11	3228	C13	3578	B8		
2347	G11	3240	B12	3600	H11		
2348	G11	3241	A13	3601	H11		
2349	G11	3242	B13	3602	H12		
2350	G11	3244	B13	3605	H12		
2351	F12	3245	B13	3606	J10		
2354	E11	3247	F11	3608	H11		
2355	E11	3248	G10	3610	I11		
2361	D10	3249	B12	3620	J13		
2362	D10	3257	F12	3627	I13		
2363	D11	3258	F12	3630	J10		
2364	A11	3260	G13	3635	I11		
2409	I8	3262	H13	3641	J12		
2410	I7	3263	H7	3709	G2		
2411	I6	3264	F8	3720	F2		
2412	B1	3266	G9	3721	G2		
2413	I6	3267	E8	3722	F2		
2414	J8	3268	G9	3723	G2		
2415	J8	3270	G8	3724	H5		
2420	C1	3271	G9	3726	I1		
2422	B2	3272	F8	3731	J5		
2423	B2	3273	C12	3760	G5		
2425	B1	3283	E8	3761	G5		
2426	B1			7100	F6		

J. P106 SERVO/MECHANISM PICK-UP ASS'Y SCHEMATIC DIAGRAMS



CS 44 405

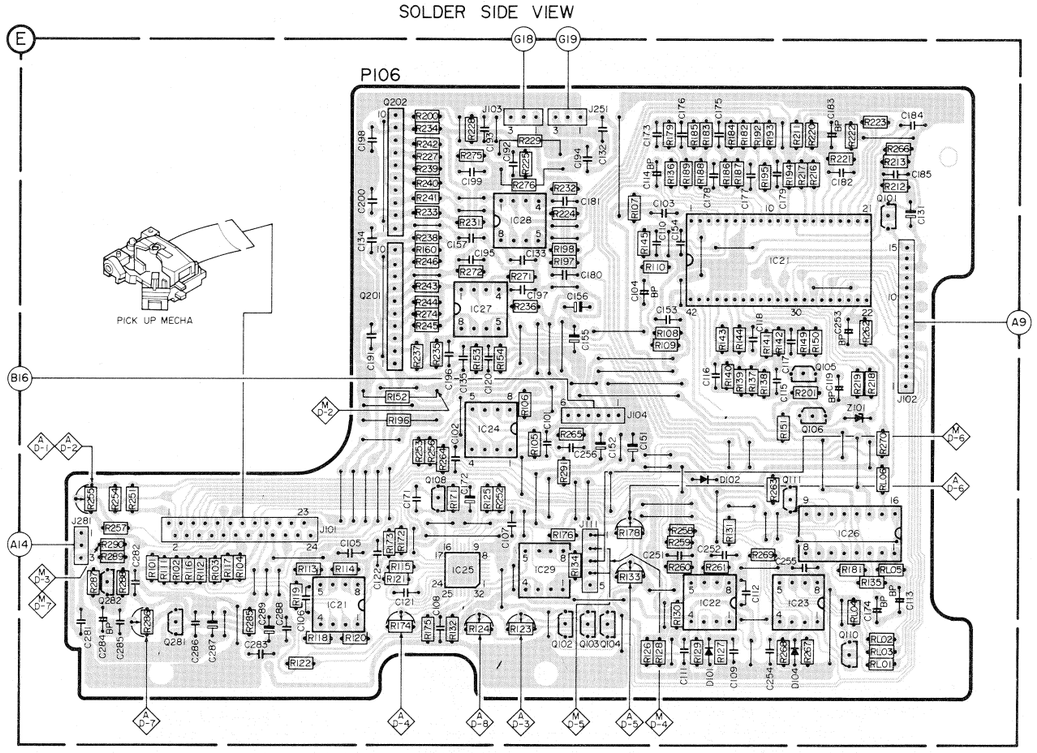
C22 B9	I C27 F11	Q102 G7	Q111 C10	Q282 G4	R107 B6	R114 D5	R121 F5	R128 A7	R135 D10	R142 D12	R152 G13	R173 F5	R183 E12	R192 F13	R198 H10	R216 G14	R223 F18	R251 B3	R258 A10	R264 B12	R272 G18	R287 F4	RL03 E20
C23 A13	I C27 G18	Q103 F6	Q201 F11	R101 D3	R108 B5	R115 D5	R122 E5	R129 B7	R136 C10	R143 D12	R153 G13	R174 E6	R184 E12	R193 F13	R199 H9	R217 G15	R224 F18	R252 C4	R259 B10	R266 A15	R273 G19	R288 G4	RL04 E20
C23 E19	I C28 F18	Q104 F7	Q201 G19	R102 D3	R108 E4	R115 F3	R123 G6	R130 A8	R137 C12	R144 D12	R154 G12	R175 E6	R185 F12	R194 F14	R200 H8	R218 G15	R225 F18	R253 A10	R260 B11	R267 A13	R274 G19	R289 G5	RL05 E19
C24 A12	I C28 G9	Q105 H13	Q202 F19	R103 D4	R109 B6	R116 D4	R124 F6	R131 B9	R138 C12	R145 B6	R159 G11	R178 E10	R186 E12	R195 F14	R201 G13	R219 G15	R226 F19	R254 B9	R261 A11	R268 A13	R275 H20	R290 G5	RL06 E18
C24 A5	I C29 D9	Q106 H14	Q202 G8	R104 D4	R110 B6	R116 E4	R125 C7	R132 E7	R139 C12	R149 D13	R160 G11	R179 E11	R187 F12	R196 H11	R211 G14	R220 H15	R227 F19	R255 B10	R262 B12	R269 A20	R276 G20	R291 A13	Z101 H15
C26 D11	I C29 F10	Q108 C4	Q251 B10	R105 B4	R111 E3	R117 E4	R126 B7	R133 D10	R140 D11	R150 D14	R171 C5	R181 E11	R188 F12	R197 H10	R212 C17	R221 G16	R228 F20	R256 A10	R263 A12	R270 E17	R285 G3	RL01 E20	
C26 E18	Q101 B6	Q110 A19	Q281 G3	R106 A4	R112 E4	R120 E5	R127 B7	R134 D10	R141 D12	R151 G14	R172 F5	R182 E12	R189 F12		R213 D17	R222 H16	R229 F20	R257 B10		R271 G18	R286 G4	RL02 E19	



PRS.04359
T12/046 BEH BY 45581C

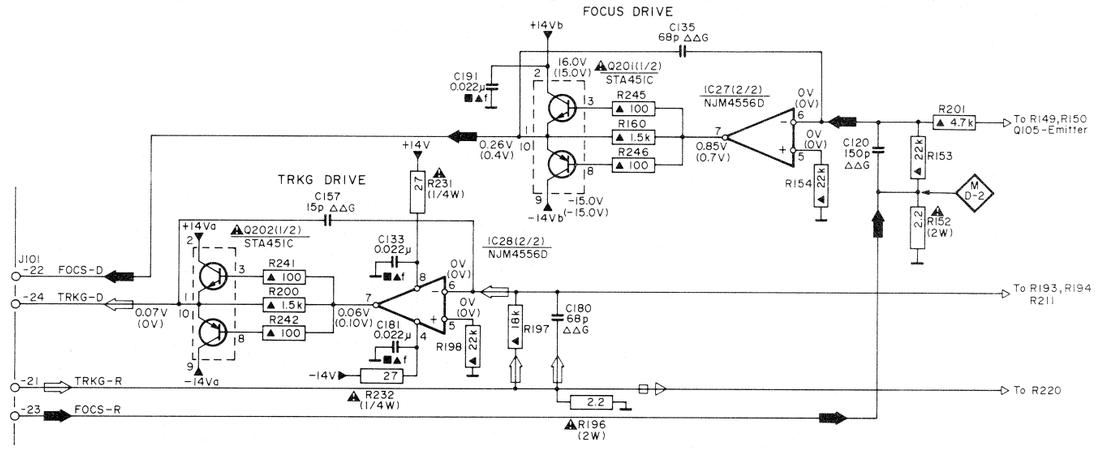
R	R200 R233~R235 R275 R228 R229 R225 R276 R232 R224 R179 R182~R189 R192~R195 R211 R220~R223 R266 R213 R227 R237~R246 R231 R272 R271 R236 R198 R197 R107~R110 R145 R136~R144 R217 R216 R219 R262 R218 R212 R255 R257 R254 R251 R101~R104 R285 R113~R115 R152~R154 R160 R274 R106 R105 R291 R265 R176 R134 R178 R258~R261 R201 R149~R151 R181 R270 R287~R290 R286 R111 R116 R112 R117 R118~R122 R196 R171~R175 R253 R256 R264 R132 R123~R125 R252 R133 R126~R130 R263 R267~R269 R135 RL01~RL06	R
C	C198 C134 C157 C199 C192~C197 C181 C180 C132 C173 C110 C103 C175~C179 C182~C185 C131 C282 C289 C288 C106 C200 C191 C135 C120 C133 C156 C155 C104 C114 C153 C154 C115~C119 C253 C281 C284 C285 C286 C287 C283 C105 C122 C121 C171 C102 C108 C172 C107 C101 C256 C152 C151 C251 C111 C252 C109 C112 C254 C255 C174 C113	C
Q-IC	Q202 IC27 IC28 IC21 Q106 Q105 IC26 Q101 Q282 Q281 IC21 Q201 Q108 IC25 IC24 IC29 Q102~Q104 IC22 Q111 IC23 Q110	Q-IC
D-Z	D101 D102 D104 Z101	D-Z

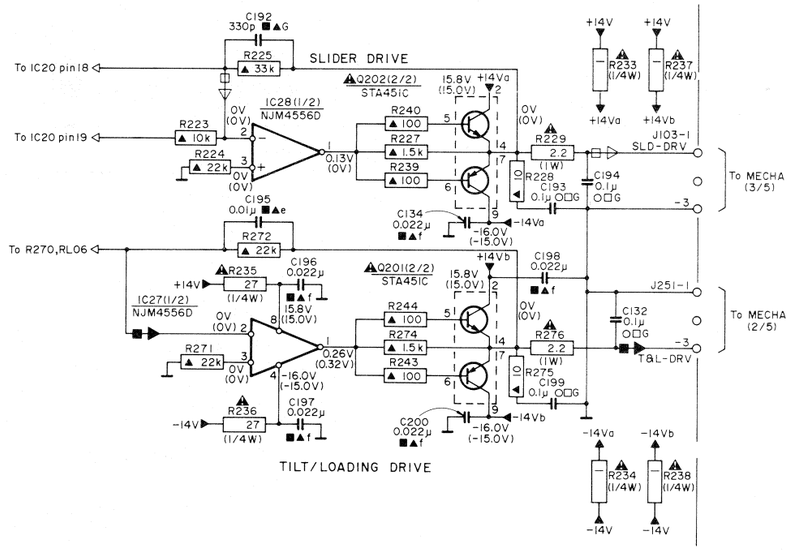
SOLDER SIDE VIEW



P106 SERVO SCHEMATIC DIAGRAM

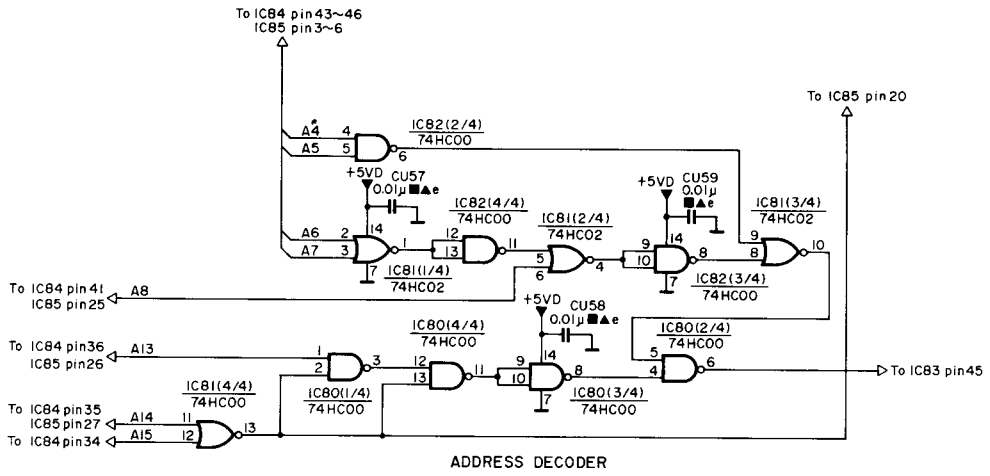
MODIFIED CIRCUIT



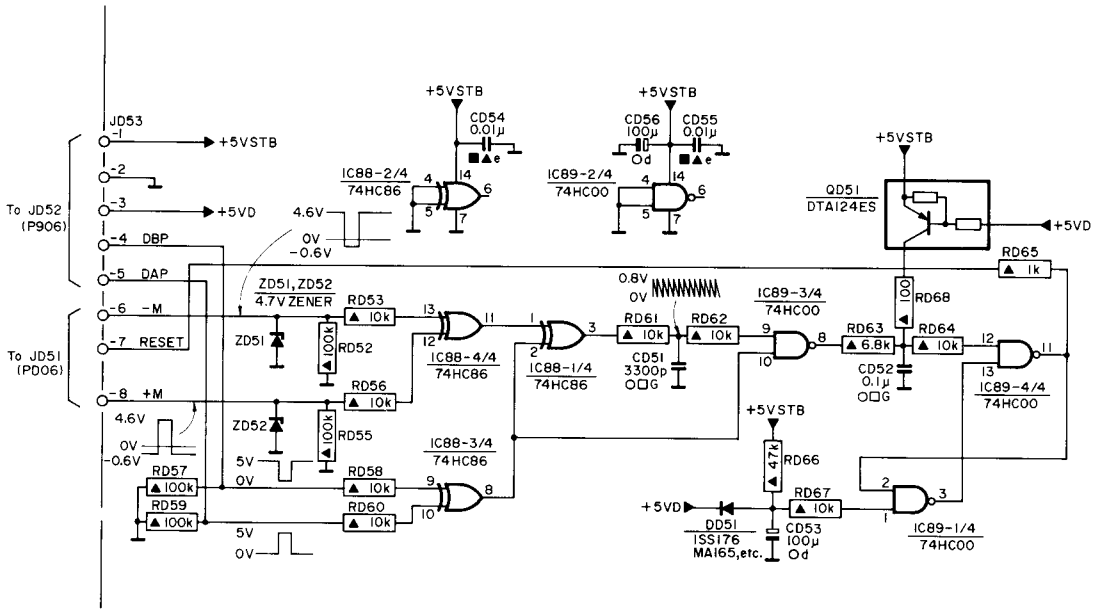


PU06 OTP μ-COM SCHEMATIC DIAGRAM

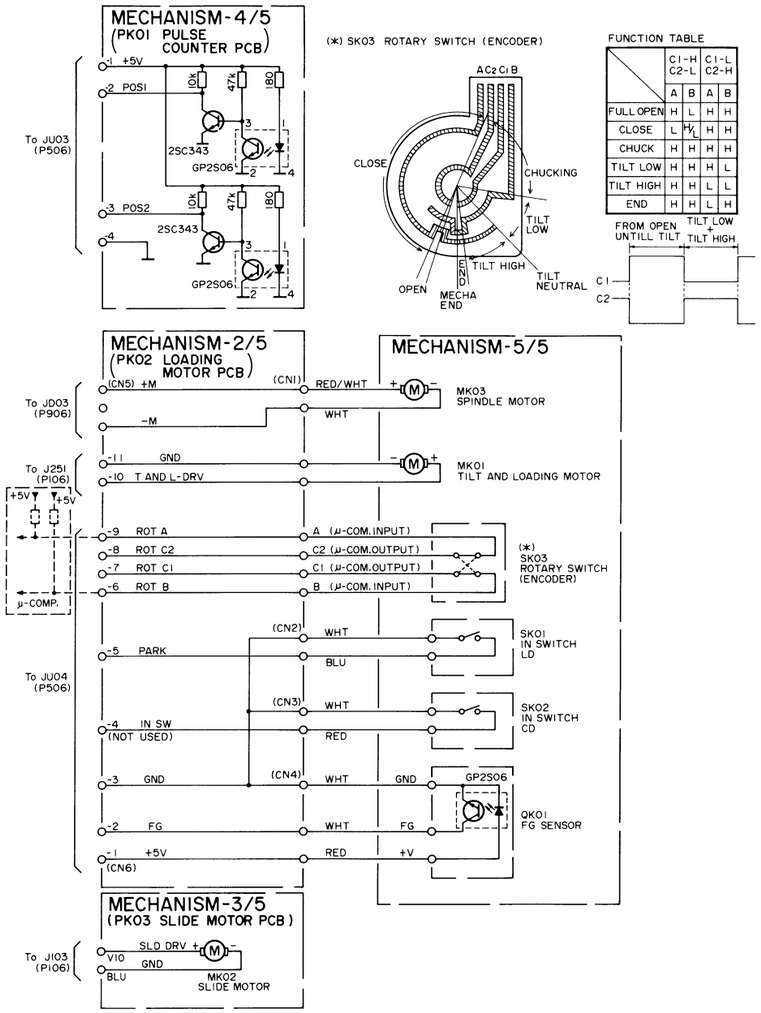
MODIFIED CIRCUIT

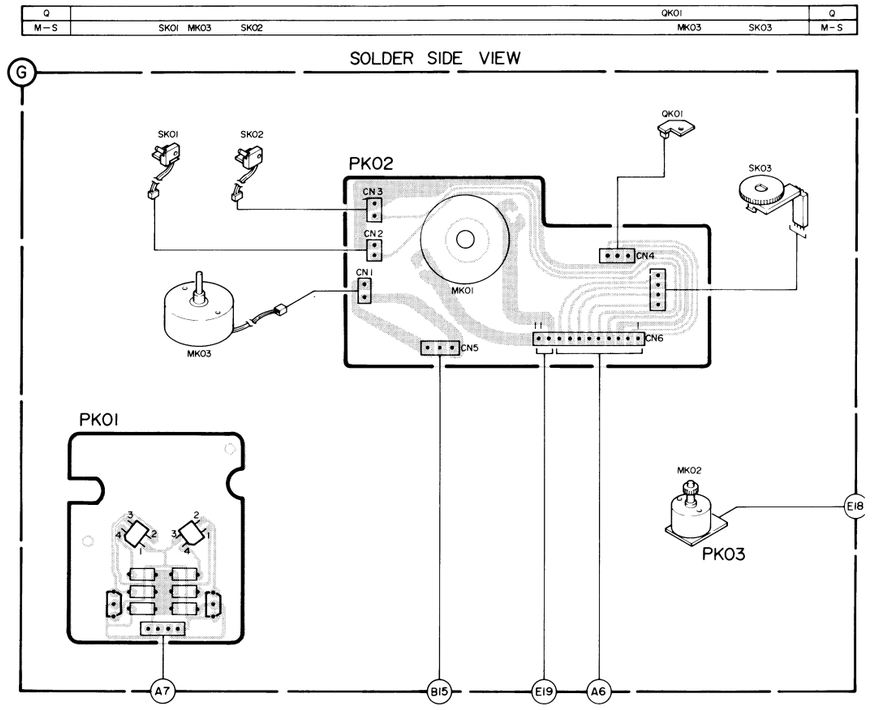


ADDITIONAL CIRCUIT



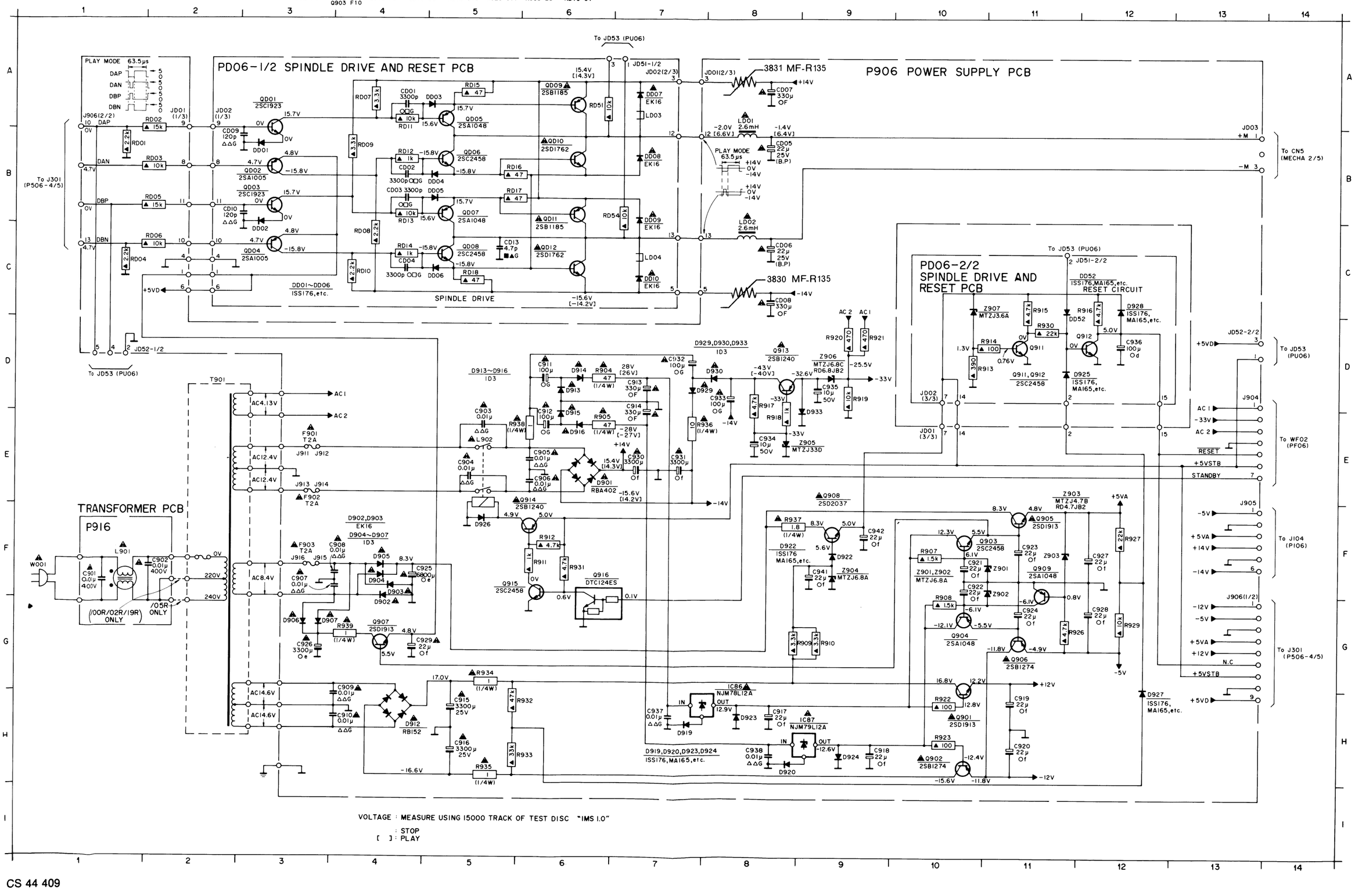
L. MECHANISM SCHEMATIC DIAGRAMS & PCBs





P906 POWER SUPPLY/P916 TRANSFORMER/PD06 SPINDLE DRIVE SCHEMATIC DIAGRAMS

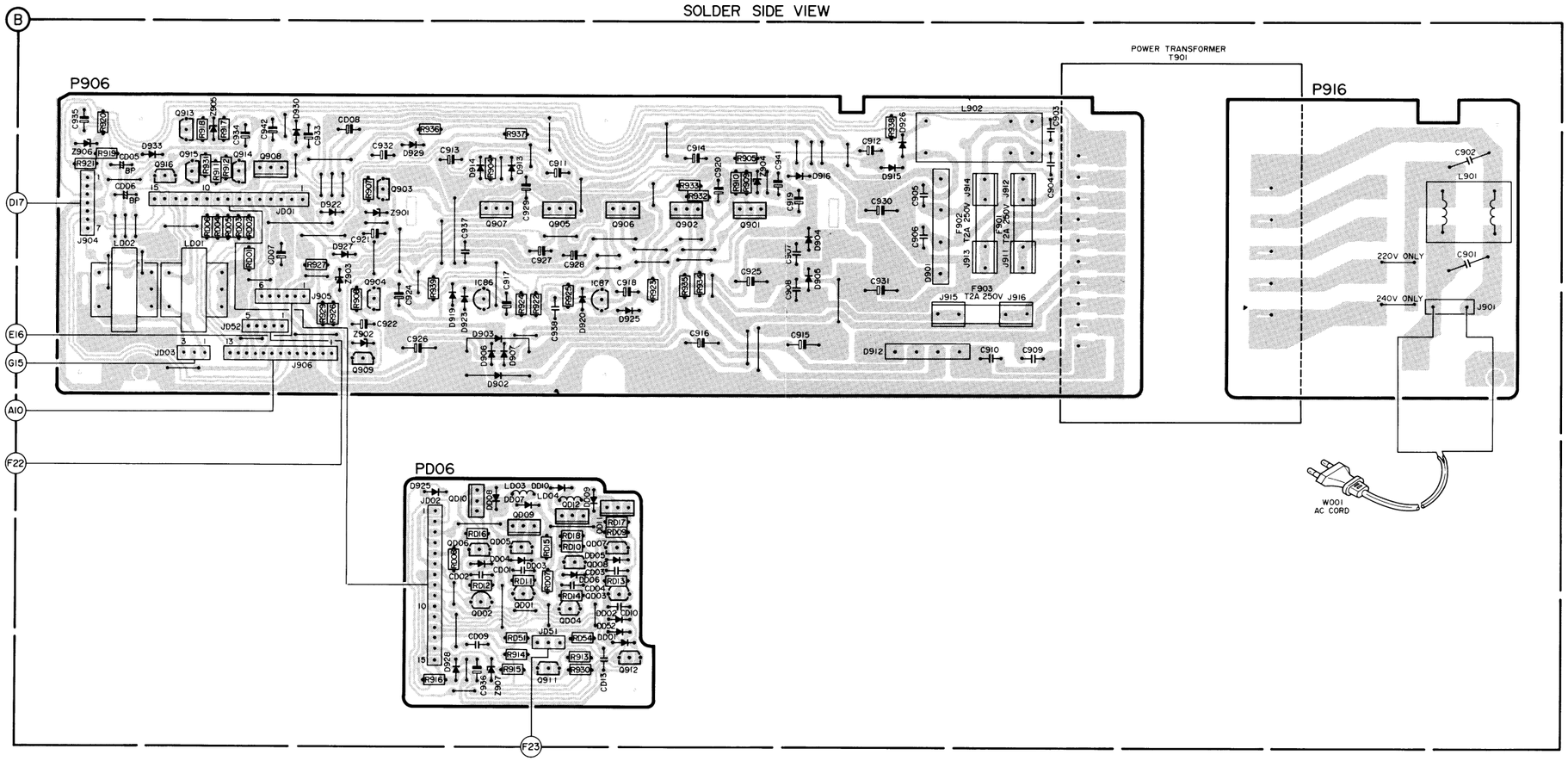
C901 F1 C902 E5 C903 E5 C904 E5 C905 E6 C906 E6 C907 F3 C908 F4 C909 H4 C910 H4 C911 D6
C912 E6 C913 D7 C914 D7 C915 H5 C916 H5 C917 H8 C918 H9 C919 H11 C920 H11 C921 F10 C922 F10
C923 F11 C924 G11 C925 F4 C926 G3 C927 F12 C928 G12 C929 G4 C930 E7 C931 E7 C932 D7 C933 D8
C934 E8 C935 D9 C936 D12 C937 H7 C938 H8 C941 F9 C942 F9 CD01 A4 CD02 B4 CD03 B4 CD04 C4
CD05 B8 CD06 C8 CD07 A8 CD08 C8 CD09 B2 CD10 B2 CD13 C5 D901 E6 D902 G4 D903 F4 D904 F4
D905 F4 D906 G3 D907 G3 D912 H4 D913 D6 D914 D6 D915 D6 D916 E6 D919 H7 D920 H8 DD01 B3
D923 H8 D924 H9 D925 D11 D926 F5 D927 G12 D928 C12 D929 D7 D930 D8 D933 D9 DD02 C3
DD03 A5 DD04 B5 DD05 B5 DD06 C5 DD07 A7 DD08 B7 DD09 B7 DD10 C7 DD52 C11 F901 E3 F902 F3
F903 F3 IC86 G8 IC87 H9 L901 F1 L902 E5 LD01 A8 LD02 C8 LD03 A7 LD04 C7 Q901 H10 Q902 H10
Q903 F10 Q904 G10 Q905 F11 Q906 G11 Q907 G4 Q908 E9 Q909 F11 Q911 D11 Q912 D12 Q913 D8
Q914 E6 Q915 F5 Q916 F6 QD01 A3 QD02 B3 QD03 B3 QD04 C3 QD05 A5 QD06 B5 QD07 B5 QD08 C5
QD09 A6 QD10 B6 QD11 B6 QD12 C6 R904 D6 R905 E6 R907 F10 R908 F10 R909 G9 R910 G9 R911 F6
R912 F6 R913 D10 R914 D11 R915 C11 R916 C12 R917 D8 R918 E9 R919 D9 R920 D9 R921 D9
R922 H10 R923 H10 R926 G11 R927 F12 R929 G12 R930 D11 R931 F6 R932 H6 R933 H6 R934 G5
R935 H5 R936 E7 R937 F8 R938 E6 RD01 A2 RD02 A2 RD03 B2 RD04 C1 RD05 B2 RD06 C2 RD07 A4
RD08 C4 RD09 B4 RD10 C4 RD11 A4 RD12 B4 RD13 B4 RD14 C4 RD15 A5 RD16 B5 RD17 B5 RD18 C5
RD51 A6 RD54 B7 T901 D2 W001 F1 Z901 F11 Z902 F11 Z903 F11 Z904 F9 Z905 E9 Z906 D9 Z907 C10



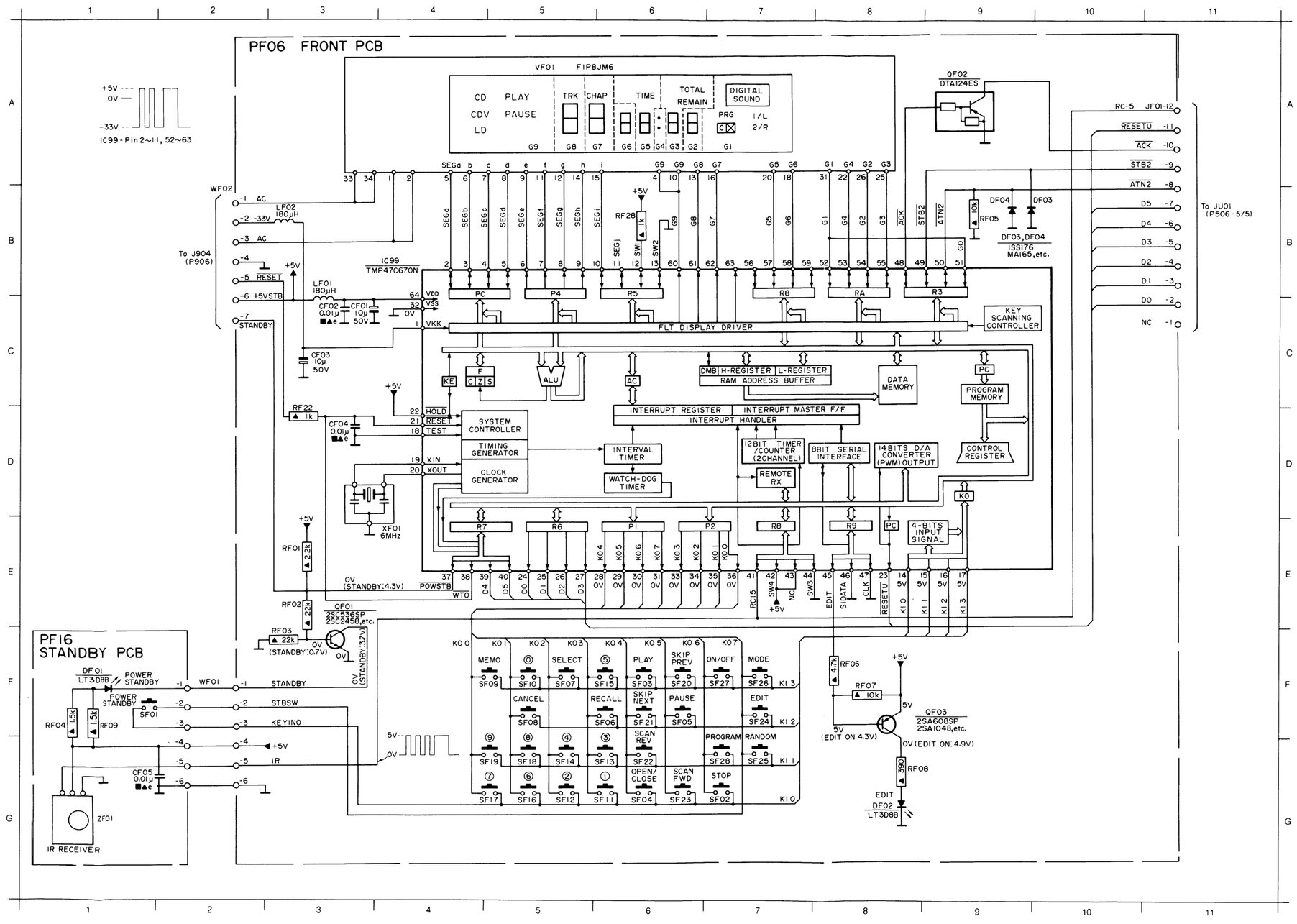
CS 44 409

N.a P906 POWER SUPPLY/P916 TRANSFORMER/PD06
SPINDLE MOTOR

R	R920 R918 R917 R907 R936 R904 R937 R924 R922 R925 RD17 R923 R933 R932 R905 R938 R921 R919 R931 R911 R912 R927 R939 RD08 RD16 RD12 RD15 RD07 RD18 RD10 RD09 RD13 R935 R934 R910 R909 RD01~RD06 R929 R926 R908 R916 R915 R914 RD51 RD11 RD14 RD54 R913 R930	R
C	C935 CD05 C934 C924 C933 CD08 C932 C924 C913 C937 C917 C929 C927 C911 C938 C928 C918 C914 C920 C941 C907 C919 C912 C930 C905 C903 C902 CD06 CD07 C921 C922 C926 CD02 CD09 C936 CD01 CD04 CD13 CD03 CD10 C916 C925 C908 C915 C931 C906 C910 C909 C904 C901	C
Q-IC	Q913 Q903 IC86 Q907 Q905 IC87 Q906 Q902 Q901 Q916 Q915 Q914 Q908 Q909 Q904 QD10 QD05 QD09 QD12 QD08 QD07 QD11 QD06 QD02 QD01 Q911 QD04 QD03 Q912	Q-IC
D-Z	Z906 D933 Z905 D930 D922 Z901 D929 D919 D923 D914 D903 D906 D902 D907 D913 D920 D925 DD02 Z904 D904 D916 D915 D926 D927 Z903 Z902 D925 D928 DD08 DD04 Z907 DD07 DD03 DD10 DD09 DD06 DD05 DD52 DD01 D905 D912 D901	D-Z
F-L-T	LD02 LD01 L902 F902 F903 F901 L901	F-L-T



O. PF06 FRONT/PF16 STANDBY SCHEMATIC DIAGRAMS

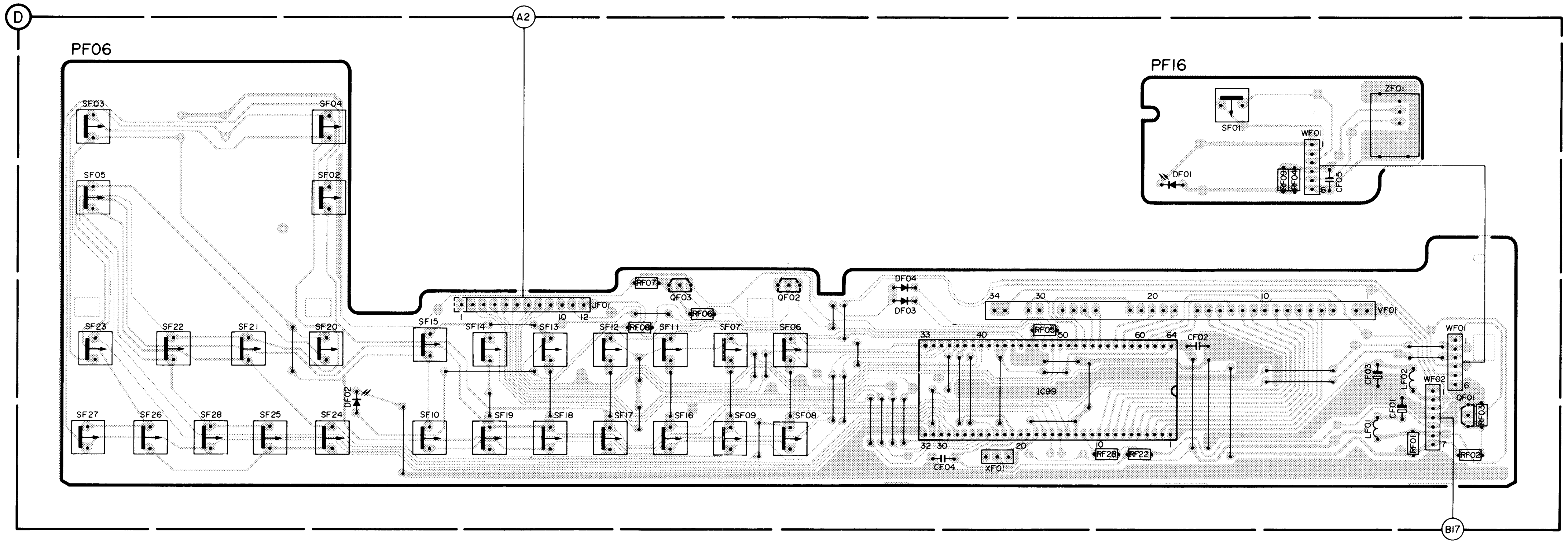


CF01 C3
CF02 C3
CF03 C3
CF04 D3
CF05 G1
DF01 F1
DF02 G8
DF03 B9
DF04 B9
IC99 B4
LF01 B3
QF01 E3
QF02 A9
QF03 F8
RF01 E3
RF02 E3
RF03 F3
RF04 F1
RF05 B9
RF06 F8
RF07 F8
RF08 G8
RF09 F1
RF22 D3
RF28 B6
SF01 F1
SF02 G6
SF03 F6
SF04 G6
SF05 F6
SF06 F5
SF07 F5
SF08 F5
SF09 F4
SF10 F5
SF11 G5
SF12 G5
SF13 G5
SF14 G5
SF15 F5
SF16 G5
SF17 G4
SF18 G5
SF19 G4
SF20 F6
SF21 F6
SF22 G6
SF23 G6
SF24 F7
SF25 G7
SF26 F7
SF27 F6
SF28 G6
XF01 E4
ZF01 G1

P. PF06 FRONT/PF16 STANDBY PCBs

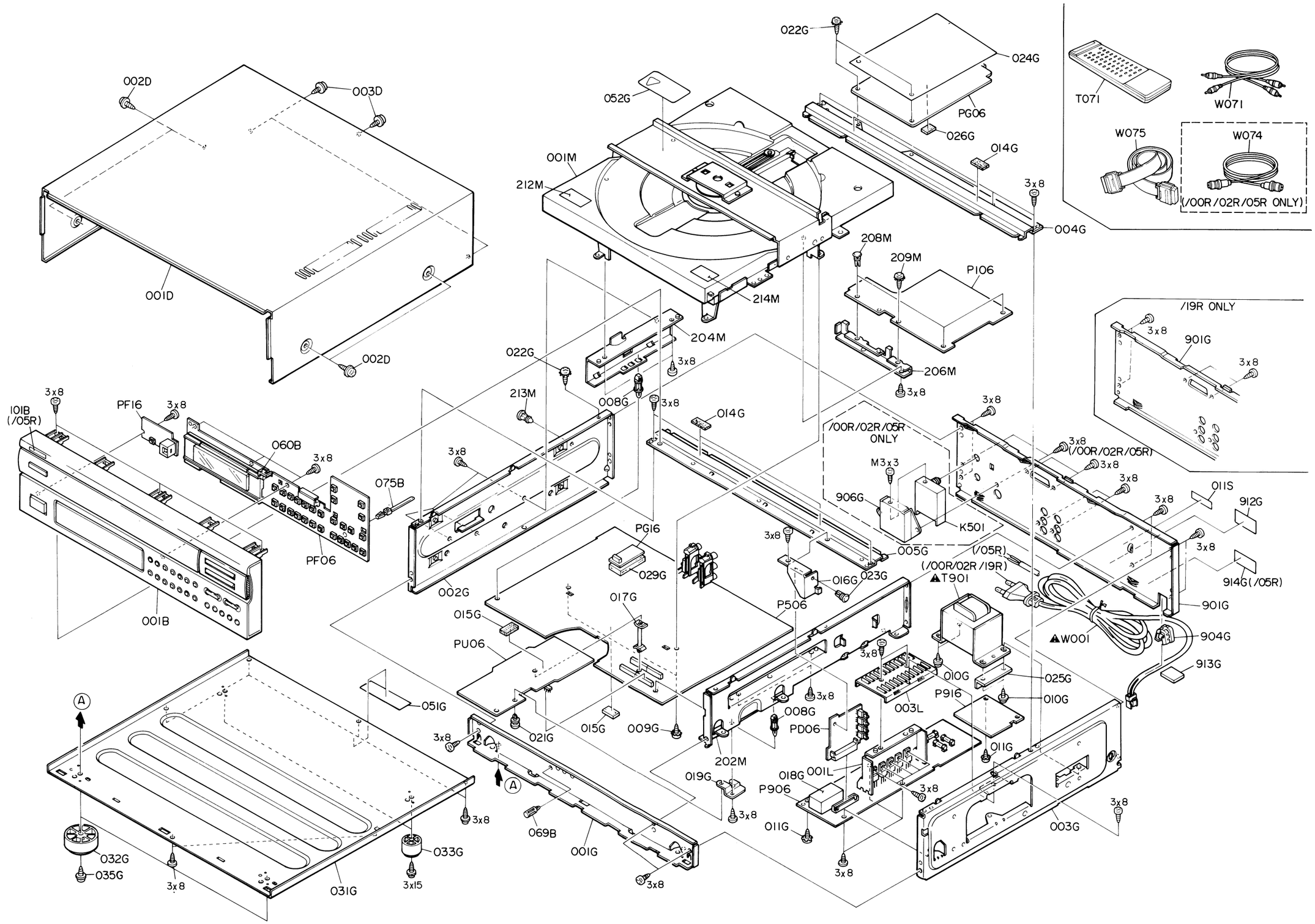
R	RF08 RF07 RF06 RF05 RF28 RF22 RF09 RF04 RF01 RF02 RF03	R
C	CF04 CF02 CF05 CF03 CF01	C
Q–IC	QF03 QF02 IC99 QF01	Q–IC
D–Z	DF02 DF04 DF03 DF01 ZF01	D–Z
L-S-V-X	SF03 SF05 SF22 SF21 SF04 SF02 SF15 SF14 SF13 SF12 SF11 SF07 SF06 SF01 VF01	L-S-V-X
	SF27 SF23 SF26 SF28 SF25 SF24 SF10 SF19 SF18 SF17 SF16 SF09 SF08 XF01 LF01 LF02	

SOLDER SIDE VIEW

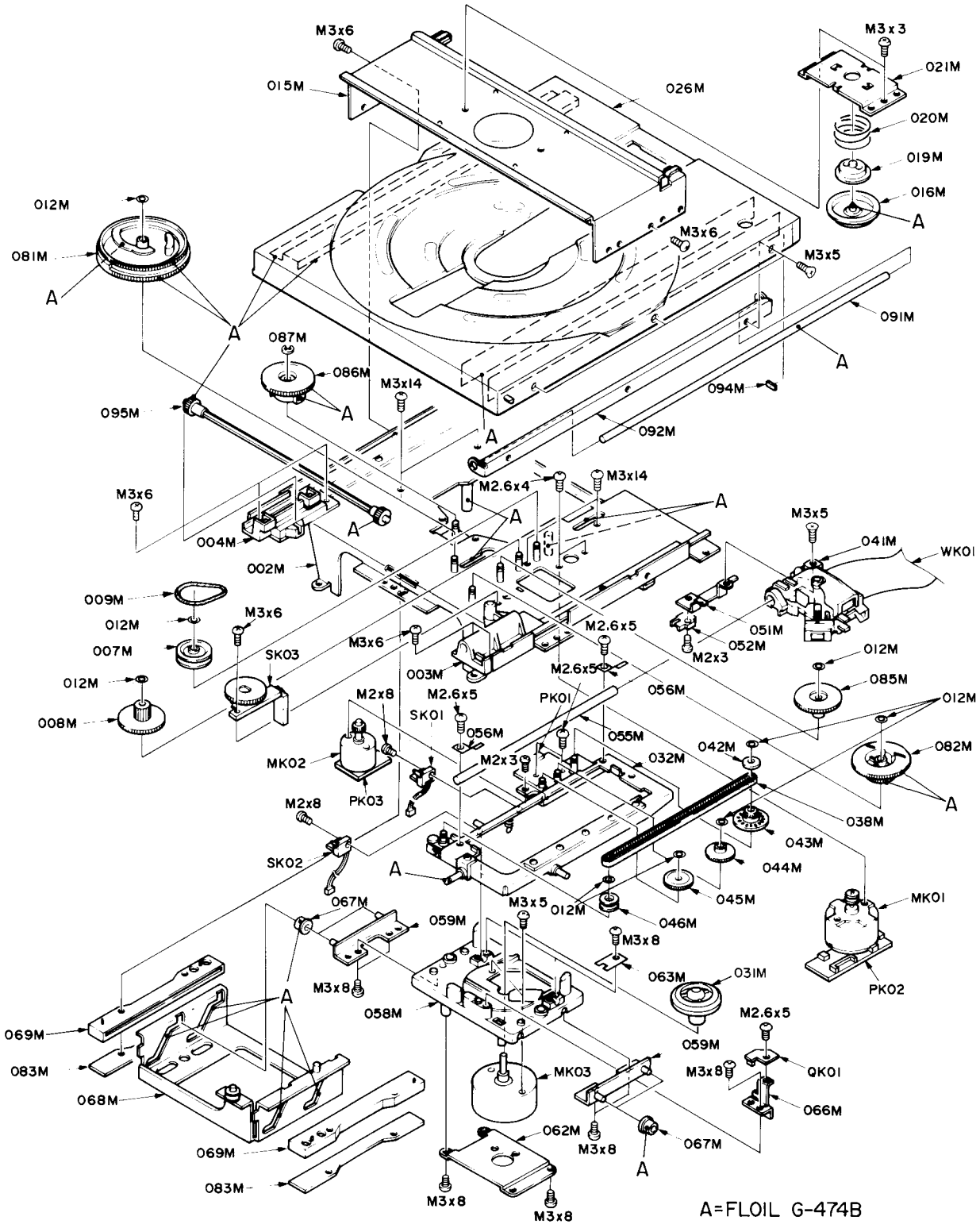


VII EXPLODED VIEWS

A. EXPLODED VIEW-1



B. EXPLODED VIEW-2



VIII PARTSLIST

MECHANICAL PARTS

	4822 401 10632	TIRE WRAP.
001B	4822 444 40467	FRONTPANNEL
069B	4822 404 60687	BRACKET
075B	4822 401 11384	CLAMPING PIECE
001D	4822 444 60759	COVER
008G	4822 401 10944	SUPPORT
008G	4822 401 10944	SUPPORT
021G	4822 401 11383	CLAMPING PIECE
032G	4822 462 30527	FOOT
032G	4822 462 30527	FOOT
901G	4822 444 60762	REAR PANEL /00B
901G	4822 444 60761	REAR PANEL /19B
904G	4822 532 60948	BUSHING
021G	4822 401 11383	CLAMPING PIECE
021G	4822 401 11383	CLAMPING PIECE
021G	4822 401 11383	CLAMPING PIECE
W001	4822 321 10729	AC CORD
W071	4822 321 22832	SBC1072
W075	4822 321 61272	SCART/CINCH CABLE
T071	4822 218 10381	REMOTE CONTROL
W074	4822 321 61274	COAX CABLE
060B	4822 256 91749	FTD HOLDER
T901	4822 146 21598	TRANFORMER TS16026040
K501	4822 214 51846	RF MODULATOR MDLK6D721A/ALPS
208M	4822 401 11383	SERVO RIVET
213M	4822 535 71081	SPACER

PARTS DRAWER MECHANISM AND OPTICAL BLOCK

MK01	4822 361 30327	L MOTOR ASSY
MK02	4822 361 30328	SLED MOTOR ASSY
MK03	4822 361 30329	SPINDLE MOTOR ASSY
PK01	4822 214 51843	PK01
PK02	4822 214 51844	L MOTOR PCB
PK03	4822 214 51845	S MOTOR PCB
QK01	4822 130 82419	FG PCB ASSY
SK01	4822 271 30743	SW PCB FOR CD
SK02	4822 271 30744	SW PCB FOR LD
SK03	4822 273 10221	ROTARY SWITCH
WK01	4822 320 50211	FLAT CABLE
031M	4822 528 10821	TURNTABLE
003M	4822 462 30517	LOADING GUIDE(A)
004M	4822 462 30518	LOADING GUIDE(B) 2-
007M	4822 528 50323	LOADING PULLEY 2-
008M	4822 522 32992	GEAR B 2-
009M	4822 358 31104	LM BELT
012M	4822 532 12029	WASHER
016M	4822 532 12028	CLAMPER ASS'Y
019M	4822 532 12027	CLAMPER RETAINER
020M	4822 492 70831	SPRING
026M	4822 425 20203	TRAY ASS'Y (ABC1) B
038M	4822 358 31105	TIMING BELT
041M	4822 691 30237	PU ASS'Y KHS-130A
042M	4822 532 12031	HOLE PIECE
043M	4822 522 32995	GEAR V
044M	4822 522 32996	GEAR A2
045M	4822 522 32997	GEAR A1
046M	4822 528 50324	PULLEY
052M	4822 401 11385	BELT CLAMPER
055M	4822 535 93168	SLIDE SHAFT
056M	4822 401 11386	SHAFT CLAMPER
063M	4822 404 60686	CHASSIS STOPPER
067M	4822 528 90808	ROLLER
069M	4822 404 60684	SLIDE GUIDE
081M	4822 528 30395	CONTROL CAM
082M	4822 522 32993	LOADING GEAR
085M	4822 522 32994	GEAR A
086M	4822 528 30396	TILT CAM
087M	4822 530 70123	E RING
091M	4822 535 93169	LOADING SHAFT 2-
094M	4822 462 71728	CUSHION
095M	4822 522 32998	TRAY GEAR ASS'Y

PARTSLIST MAINPANEL

	4822 051 10008	0R00 5% 0,25W
	4822 051 10008	0R00 5% 0,25W
	4822 051 10008	0R00 5% 0,25W
	4822 051 10008	0R00 5% 0,25W
	4822 051 10008	0R00 5% 0,25W
	4822 051 10008	0R00 5% 0,25W

Various

1401	4822 290 60998	YKC21-3054
1715	4822 242 72527	CST4.00MGW-TF01

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2100	4822 122 31797	22nF 10% X7R 63V
2110	5322 122 32966	39pF 5% NP0 50V
2111	4822 122 31797	22nF 10% X7R 63V
2112	4822 124 21739	ECEA1CKA220B
2113	4822 124 21739	ECEA1CKA220B
2114	4822 122 31797	22nF 10% X7R 63V
2115	5322 122 32452	47pF 5% 50V
2116	4822 122 31797	22nF 10% X7R 63V
2126	4822 124 40433	ELCAP 25V 47MU PM20
2127	4822 124 40433	47µF 20% 25V
2130	4822 122 33339	SMD C0805 2N7 PM10
2131	5322 122 31863	SMD C0805 330P PM5
2132	4822 122 33806	SMD C0805 820P PM50
2133	4822 122 33806	SMD C0805 820P PM50
2134	4822 122 33586	SMD C0805 3N9 PM10
2135	4822 122 31797	22nF 10% X7R 63V
2137	4822 122 31797	22nF 10% X7R 63V
2138	4822 122 31797	22nF 10% X7R 63V
2140	4822 124 40196	220µF20% 16V
2141	4822 122 31797	22nF 10% X7R 63V
2200	4822 122 31797	22nF 10% X7R 63V
2201	4822 122 31797	22nF 10% X7R 63V
2202	4822 124 22048	ECEAOJKA221B
2204	4822 122 31797	22nF 10% X7R 63V
2205	4822 124 40433	47µF 20% 25V
2206	4822 122 31797	22nF 10% X7R 63V
2207	4822 124 40433	47µF 20% 25V
2208	4822 122 33496	100nF 10% X7R 63V
2210	4822 126 10326	180pF
2211	4822 122 31797	22nF 10% X7R 63V
2212	4822 124 40433	47µF 20% 25V
2213	4822 122 33175	2,2nF 20% X7R 50V
2214	4822 122 33177	10nF 20% X7R 50V
2215	4822 122 33669	150nF 20% 50V
2216	5322 122 32966	39pF 5% NP0 50V
2217	4822 122 33064	330nF 80% Y5V 25V
2218	4822 122 31981	33nF +-0,5pF 50V
2219	4822 122 33891	3,3nF 10% X7R 63V
2220	4822 122 33891	3,3nF 10% X7R 63V
2221	5322 122 32531	100pF 5% NP0 50V
2223	4822 122 32542	47nF 10% X7R 63V
2224	4822 122 31797	22nF 10% X7R 63V
2225	5322 122 32965	18pF 5% NPO 50V
2226	4822 122 31797	22nF 10% X7R 63V
2227	4822 124 40242	1µF 20% 63V
2228	4822 122 32542	47nF 10% X7R 63V
2229	4822 122 31797	22nF 10% X7R 63V
2230	4822 122 33496	100nF 10% X7R 63V
2231	4822 126 10004	120pF 5% 63V
2232	5322 122 32448	10pF 5% 50V
2233	5322 122 31946	27pF 10% 50V
2234	4822 122 33515	82pF 5% NP0 63V

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2235	4822 122 33339	4,7nF 10% X7R 50V 0805
2236	5322 122 32661	56pF 5% 50V
2237	5322 122 32531	100pF 5% NP0 50V
2238	5322 122 34123	1nF 10% X7R 50V
2239	5322 122 31946	27pF 10% 50V
2240	4822 122 32542	47nF 10% X7R 63V
2241	5322 122 32531	100pF 5% NP0 50V
2242	5322 122 32531	100pF 5% NP0 50V
2243	5322 122 32269	6,8pF 5% 50V
2244	4822 124 40435	10µF 20% 50V
2245	4822 122 33177	10nF 20% X7R 50V
2246	4822 124 41577	4,7µF 20% 50V
2247	4822 122 33177	10nF 20% X7R 50V
2248	4822 122 31797	22nF 10% X7R 63V
2249	5322 122 31946	27pF 10% 50V
2250	4822 122 32927	220nF
2251	4822 122 31797	22nF 10% X7R 63V
2254	4822 122 31797	22nF 10% X7R 63V
2255	4822 122 31797	22nF 10% X7R 63V
2256	4822 124 40433	47µF 20% 25V
2258	4822 122 31797	22nF 10% X7R 63V
2259	4822 124 40433	47µF 20% 25V
2260	5322 122 31946	27pF 10% 50V
2261	5322 122 31946	27pF 10% 50V
2263	4822 122 33177	10nF 20% X7R 50V
2264	5322 122 32268	470pF 10% 50V
2265	5322 122 32965	18pF 5% NPO 50V
2266	4822 125 50092	40pF
2267	4822 125 50092	40pF
2268	5322 122 32965	18pF 5% NPO 50V
2269	5322 122 32659	33pF 5% 50V
2270	5322 122 32659	33pF 5% 50V
2271	4822 124 22048	ECEAOJKA221B
2272	4822 122 31797	22nF 10% X7R 63V
2274	4822 122 33216	270pF 5% NP0 50V
2275	4822 122 31797	22nF 10% X7R 63V
2276	4822 122 31797	22nF 10% X7R 63V
2277	4822 122 33496	100nF 10% X7R 63V
2278	4822 122 33496	100nF 10% X7R 63V
2279	4822 122 31797	22nF 10% X7R 63V
2280	4822 121 43869	68nF 5% 50V
2281	4822 121 41854	150nF 5% 63V
2282	4822 122 31797	22nF 10% X7R 63V
2283	4822 122 31797	22nF 10% X7R 63V
2284	5322 122 32531	100pF 5% NP0 50V
2285	5322 122 32268	470pF 10% 50V
2286	4822 122 33806	820pF 10% X7R 63V
2287	4822 122 31797	22nF 10% X7R 63V
2288	4822 122 33177	10nF 20% X7R 50V
2296	4822 122 31797	22nF 10% X7R 63V
2297	4822 124 21739	ECEA1CKA220B
2300	4822 122 31797	22nF 10% X7R 63V
2301	4822 122 33177	10nF 20% X7R 50V
2305	5322 122 32966	39pF 5% NP0 50V
2306	4822 122 32139	12pF 5% 63V
2307	4822 122 33515	82pF 5% NP0 63V
2308	4822 122 33496	100nF 10% X7R 63V
2309	4822 122 32927	220nF
2312	4822 122 32542	47nF 10% X7R 63V
2313	5322 122 34123	1nF 10% X7R 50V
2314	4822 124 40433	47µF 20% 25V
2315	4822 122 31797	22nF 10% X7R 63V
2316	5322 122 32967	5,6pF 5% NP0 50V
2317	4822 124 40433	47µF 20% 25V
2318	4822 122 31797	22nF 10% X7R 63V
2319	5322 122 32448	10pF 5% 50V

2320	4822 122 31797	22nF 10% X7R 63V
2321	5322 122 32287	4,7pF 5% NP0 50V
2322	5322 122 32452	47pF 5% 50V
2323	5322 122 32448	10pF 5% 50V
2324	4822 122 31797	22nF 10% X7R 63V
2325	4822 124 41577	4,7µF 20% 50V
2326	4822 124 40435	10µF 20% 50V
2327	4822 124 41577	4,7µF 20% 50V
2329	4822 124 40435	10µF 20% 50V
2330	4822 122 32542	47nF 10% X7R 63V
2331	4822 122 31797	22nF 10% X7R 63V
2332	4822 124 22048	ECEAOJKA221B
2333	4822 124 22048	ECEAOJKA221B
2334	4822 122 31797	22nF 10% X7R 63V
2335	4822 124 22048	ECEAOJKA221B
2336	4822 122 31797	22nF 10% X7R 63V
2337	5322 122 32966	39pF 5% NP0 50V
2338	5322 122 32659	33pF 5% 50V
2339	4822 122 32542	47nF 10% X7R 63V
2340	4822 122 31797	22nF 10% X7R 63V
2341	4822 122 33496	100nF 10% X7R 63V
2342	4822 126 10004	120pF 5% 63V
2343	4822 122 33515	82pF 5% NP0 63V
2344	5322 122 31946	27pF 10% 50V
2345	4822 122 33339	4,7nF 10% X7R 50V 0805
2346	5322 122 32661	56pF 5% 50V
2347	5322 122 32452	47pF 5% 50V
2348	5322 122 34123	1nF 10% X7R 50V
2349	5322 122 34123	1nF 10% X7R 50V
2350	4822 122 31797	22nF 10% X7R 63V
2351	4822 122 32542	47nF 10% X7R 63V
2353	4822 124 40196	220µF 20% 16V
2354	4822 122 31797	22nF 10% X7R 63V
2355	5322 122 32967	5,6pF 5% NP0 50V
2361	4822 122 33175	2,2nF 20% X7R 50V
2362	5322 122 31873	2,7pF +-0,5 100V
2363	4822 122 33496	100nF 10% X7R 63V
2364	4822 122 31797	22nF 10% X7R 63V
2409	4822 122 31797	22nF 10% X7R 63V
2410	4822 122 31797	22nF 10% X7R 63V
2411	4822 122 31797	22nF 10% X7R 63V
2412	4822 122 33515	82pF 5% NP0 63V
2413	4822 122 33336	8,2nF 10% X7R 50V
2414	4822 122 31797	22nF 10% X7R 63V
2415	5322 122 32659	33pF 5% 50V
2420	4822 122 31797	22nF 10% X7R 63V
2421	4822 124 22048	ECEAOJKA221B
2422	4822 122 32575	220pF 10% 500V
2423	4822 126 10326	180pF
2424	4822 124 21739	ECEA1CKA220B
2425	5322 122 32286	3,3pF 5% NP0 50V
2426	4822 126 10326	180pF
2430	4822 122 31797	22nF 10% X7R 63V
2431	4822 122 33893	18nF 10% X7R 63V
2432	4822 122 33177	10nF 20% X7R 50V
2433	4822 124 21739	ECEA1CKA220B
2434	4822 124 21739	ECEA1CKA220B
2435	5322 122 34123	1nF 10% X7R 50V
2440	4822 122 31797	22nF 10% X7R 63V
2441	4822 124 22048	ECEAOJKA221B
2442	5322 122 32269	6,8pF 5% 50V
2443	4822 122 32575	220pF 10% 500V
2444	4822 124 22048	ECEAOJKA221B
2445	4822 124 21739	ECEA1CKA220B
2446	5322 122 34123	1nF 10% X7R 50V
2450	4822 122 32614	1.2nF 10% X7R 50V
2451	5322 122 32659	33pF 5% 50V
2452	4822 122 33339	4,7nF 10% X7R 50V 0805
2453	4822 122 32575	220pF 10% 500V
2454	4822 124 22048	ECEAOJKA221B
2455	4822 122 33496	100nF 10% X7R 63V
2456	4822 124 21739	ECEA1CKA220B
2457	4822 122 33336	8,2nF 10% X7R 50V
2458	4822 124 21739	ECEA1CKA220B
2459	4822 122 33336	8,2nF 10% X7R 50V
2460	4822 122 32575	220pF 10% 500V
2461	4822 122 33339	4,7nF 10% X7R 50V 0805
2462	5322 122 32659	33pF 5% 50V
2463	4822 122 32614	1.2nF 10% X7R 50V
2464	4822 124 21739	ECEA1CKA220B
2465	4822 126 10004	120pF 5% 63V
2466	5322 122 32268	470pF 10% 50V
2467	4822 122 33515	82pF 5% NP0 63V
2468	4822 124 40433	47µF 20% 25V
2469	4822 122 31797	22nF 10% X7R 63V
2470	4822 122 32542	47nF 10% X7R 63V
2471	4822 124 22048	ECEAOJKA221B
2472	4822 124 21739	ECEA1CKA220B
2473	4822 122 33177	10nF 20% X7R 50V
2474	4822 124 21739	ECEA1CKA220B
2475	4822 122 33177	10nF 20% X7R 50V
2476	4822 124 21739	ECEA1CKA220B
2477	4822 122 32542	47nF 10% X7R 63V
2478	4822 124 42202	0,47µF 20% 25V
2480	4822 124 41577	4,7µF 20% 50V
2485	4822 124 21739	ECEA1CKA220B
2486	5322 122 33538	150pF 5% NP0 63V
2487	4822 122 32614	1.2nF 10% X7R 50V
2488	4822 122 31797	22nF 10% X7R 63V
2489	4822 124 40433	47µF 20% 25V
2490	4822 124 41577	4,7µF 20% 50V
2491	4822 122 33893	18nF 10% X7R 63V
2492	4822 124 40433	47µF 20% 25V
2493	4822 122 31797	22nF 10% X7R 63V
2494	4822 124 40433	47µF 20% 25V
2495	4822 122 32542	47nF 10% X7R 63V
2497	4822 122 31797	22nF 10% X7R 63V
2498	4822 122 31797	22nF 10% X7R 63V
2500	4822 122 33339	4,7nF 10% X7R 50V 0805
2501	4822 122 33064	330nF 80% Y5V 25V
2502	4822 124 40242	1µF 20% 63V
2503	4822 122 33724	120nF 20% Y5V 50V
2504	5322 122 32268	470pF 10% 50V
2505	4822 124 40433	47µF 20% 25V
2506	4822 122 31797	22nF 10% X7R 63V
2511	5322 122 31863	330pF 5% NP0 50V
2512	5322 122 31863	330pF 5% NP0 50V
2513	4822 122 33339	4,7nF 10% X7R 50V 0805
2514	4822 124 41577	4,7µF 20% 50V
2524	4822 122 33806	820pF 10% X7R 63V
2525	4822 122 31797	22nF 10% X7R 63V
2530	4822 124 22048	ECEAOJKA221B
2531	4822 122 31797	22nF 10% X7R 63V
2533	4822 122 31797	22nF 10% X7R 63V
2534	4822 124 22048	ECEAOJKA221B
2535	4822 122 31797	22nF 10% X7R 63V
2536	4822 122 31797	22nF 10% X7R 63V
2537	4822 122 31797	22nF 10% X7R 63V
2538	4822 124 22048	ECEAOJKA221B
2540	4822 121 43868	1,5nF 5% 50V
2541	4822 121 43873	27nF 5% 50V
2542	4822 121 43899	1,8nF 5% 50V

PARTSLIST MAINPANEL (continued)

2543	5322 121 42927	3,9nF 5% 250V
2546	4822 121 43897	1nF 5% 50V
2548	4822 124 41577	4,7µF 20% 50V
2549	4822 122 31797	22nF 10% X7R 63V
2550	4822 122 31797	22nF 10% X7R 63V
2551	4822 124 40196	220µF 20% 16V
2552	4822 124 40196	220µF 20% 16V
2553	4822 124 41577	4,7µF 20% 50V
2555	4822 121 43873	27nF 5% 50V
2556	4822 121 43899	1,8nF 5% 50V
2557	5322 121 42927	3,9nF 5% 250V
2558	4822 121 43897	1nF 5% 50V
2559	4822 121 43868	1,5nF 5% 50V
2560	4822 122 31797	22nF 10% X7R 63V
2561	4822 122 31797	22nF 10% X7R 63V
2567	4822 122 31797	22nF 10% X7R 63V
2570	5322 116 80853	560pF 5% NP0 63V
2580	4822 122 31797	22nF 10% X7R 63V
2590	4822 124 41577	4,7µF 20% 50V
2600	4822 126 10326	180pF
2602	4822 124 40433	47µF 20% 25V
2603	4822 122 33177	10nF 20% X7R 50V
2604	4822 124 41578	6,8µF 20% 50V
2606	4822 126 10326	180pF
2607	4822 126 10326	180pF
2608	4822 126 10326	180pF
2609	4822 122 31797	22nF 10% X7R 63V
2610	4822 122 33064	330nF 80% Y5V 25V
2611	4822 124 42201	4,7µF 20% 25V
2620	5322 122 31865	1,5nF 10% X7R 63V
2621	4822 124 40433	47µF 20% 25V
2622	5322 122 34123	1nF 10% X7R 50V
2623	4822 122 31797	22nF 10% X7R 63V
2627	5322 122 31946	27pF 10% 50V
2630	5322 122 34123	1nF 10% X7R 50V
2631	5322 122 34123	1nF 10% X7R 50V
2632	5322 122 34123	1nF 10% X7R 50V
2633	5322 122 34123	1nF 10% X7R 50V
2640	4822 122 31797	22nF 10% X7R 63V
2641	4822 122 31797	22nF 10% X7R 63V
2642	4822 124 40433	47µF 20% 25V
2643	4822 122 31797	22nF 10% X7R 63V
2644	4822 124 40433	47µF 20% 25V
2700	4822 122 31797	22nF 10% X7R 63V
2701	4822 124 40433	47µF 20% 25V
2705	5322 122 32659	33pF 5% 50V
2706	4822 122 33543	15nF 10% X7R 50V
2707	5322 122 32658	22pF 5% 50V
2708	5322 122 32658	22pF 5% 50V
2710	4822 122 31797	22nF 10% X7R 63V
2720	4822 126 10326	180pF
2724	5322 122 32268	470pF 10% 50V
2742	4822 122 31797	22nF 10% X7R 63V
2760	5322 122 32268	470pF 10% 50V
2798	4822 122 31797	22nF 10% X7R 63V
2799	4822 122 31797	22nF 10% X7R 63V

3100	4822 051 10101	100R00 2% 0,25W
3101	4822 051 10681	680R00 2% 0,25W
3102	4822 116 52224	470E 5% 0,5W
3105	4822 051 10152	1K50 2% 0,25W
3106	4822 051 10102	1K00 2% 0,25W
3108	4822 051 10682	6K80 2% 0,25W
3109	4822 051 10682	6K80 2% 0,25W
3110	4822 050 23901	390R00 1% 0,6W
3111	4822 051 10471	470R00 2% 0,25W
3112	4822 116 52224	470E 5% 0,5W
3113	4822 100 11426	RH0634CS2R06A
3114	4822 050 23901	390R00 1% 0,6W
3115	4822 051 10102	1K00 2% 0,25W
3117	4822 050 21002	1K00 1% 0,6W
3118	4822 100 11386	RH063HC13R04A
3119	4822 051 10103	10K00 2% 0,25W
3120	4822 051 10102	1K00 2% 0,25W
3121	4822 051 10103	10K00 2% 0,25W
3122	4822 051 10103	10K00 2% 0,25W
3123	4822 051 10103	10K00 2% 0,25W
3124	4822 051 10103	10K00 2% 0,25W
3125	4822 051 10332	3K30 2% 0,25W
3126	4822 050 22202	2K20 1% 0,6W
3127	4822 050 13303	FLMRST 1/8W 33K PM5
3128	4822 051 10103	FLMRST 1/8W 10K PM5
3129	4822 051 10471	FLMRST 1/8W470R PM5
3130	4822 050 16809	FLMRST 1/8W68R PM5
3131	4822 050 27509	FLMRST 1/8W75R PM5
3132	4822 050 21003	10K00 1% 0,6W
3133	4822 050 24702	4K70 1% 0,6W
3134	4822 050 16809	68R00 1% 0,4W
3135	4822 050 13303	33K00 1% 0,4W
3140	4822 052 10108	1R00 5% 0,33W
3141	4822 051 10103	10K00 2% 0,25W
3142	4822 051 10103	10K00 2% 0,25W
3145	4822 051 10101	100R00 2% 0,25W
3200	4822 052 11151	150R00 5% 0,5W
3201	4822 051 10102	1K00 2% 0,25W
3202	4822 052 10109	10R00 5% 0,33W
3203	4822 052 10109	10R00 5% 0,33W
3210	4822 052 10569	56R00 5% 0,33W
3211	4822 050 21203	12K00 1% 0,6W
3212	4822 051 10561	560R00 2% 0,25W
3213	4822 050 26802	6K80 1% 0,6W
3214	4822 050 22201	220R00 1% 0,6W
3215	4822 050 23901	390R00 1% 0,6W
3216	4822 050 21201	120R00 1% 0,6W
3217	4822 051 10103	10K00 2% 0,25W
3218	4822 050 24705	4M70 1% 0,6W
3219	4822 050 23301	330R00 1% 0,6W
3221	4822 050 22203	22K00 1% 0,6W
3222	4822 051 10223	22K00 2% 0,25W
3224	4822 051 10223	22K00 2% 0,25W
3225	4822 051 10102	1K00 2% 0,25W
3226	4822 051 10102	1K00 2% 0,25W
3227	4822 051 10101	100R00 2% 0,25W
3228	4822 051 10682	6K80 2% 0,25W
3229	4822 050 21002	1K00 1% 0,6W
3230	4822 050 21101	110R00 1% 0,6W
3231	4822 050 23302	3K30 1% 0,6W
3232	4822 051 10104	100K00 2% 0,25W
3233	4822 051 10101	100R00 2% 0,25W
3234	4822 116 52235	1M 5% 0,5W
3235	4822 050 24703	47K00 1% 0,6W
3236	4822 050 22202	2K20 1% 0,6W
3237	4822 050 24702	4K70 1% 0,6W
3238	4822 116 52224	470E 5% 0,5W
3240	4822 051 10102	1K00 2% 0,25W
3241	4822 051 10561	560R00 2% 0,25W
3242	4822 051 10102	1K00 2% 0,25W
3243	4822 052 10109	10R00 5% 0,33W
3244	4822 051 10471	470R00 2% 0,25W
3245	4822 051 10472	4K70 2% 0,25W

PARTSLIST MAINPANEL (continued)

3246	4822 052 11151	150R00 5% 0,5W
3247	4822 051 10331	330R00 2% 0,25W
3248	4822 051 20222	2K20 5% 0,1W
3249	4822 051 10102	1K00 2% 0,25W
3250	4822 050 21002	1K00 1% 0,6W
3255	4822 050 21203	12K00 1% 0,6W
3256	4822 116 52263	2K7 5% 0,5W
3257	4822 051 10682	6K80 2% 0,25W
3258	4822 051 10561	560R00 2% 0,25W
3260	4822 051 10102	1K00 2% 0,25W
3261	4822 050 24702	4K70 1% 0,6W
3262	4822 051 10103	10K00 2% 0,25W
3263	4822 051 10103	10K00 2% 0,25W
3264	4822 051 10472	4K70 2% 0,25W
3265	4822 050 24704	470K00 1% 0,6W
3266	4822 051 10182	1K80 2% 0,25W
3267	4822 051 10331	330R00 2% 0,25W
3268	4822 051 10102	1K00 2% 0,25W
3269	4822 116 52224	470E 5% 0,5W
3270	4822 051 10471	470R00 2% 0,25W
3271	4822 051 10102	1K00 2% 0,25W
3272	4822 051 10331	330R00 2% 0,25W
3273	4822 051 10122	1K20 2% 0,25W
3274	4822 050 25603	56K00 1% 0,6W
3276	4822 050 25603	56K00 1% 0,6W
3277	4822 050 22404	240K00 1% 0,6W
3278	4822 050 13303	33K00 1% 0,4W
3279	4822 050 29103	91K00 1% 0,6W
3280	4822 050 26803	68K00 1% 0,6W
3281	4822 050 26803	68K00 1% 0,6W
3282	4822 116 52264	27K 5% 0,5W
3283	4822 051 10153	15K00 2% 0,25W
3284	4822 051 10561	560R00 2% 0,25W
3285	4822 051 10102	1K00 2% 0,25W
3286	4822 050 21504	150K00 1% 0,6W
3287	4822 116 52303	8K2 5% 0,5W
3288	4822 051 10332	3K30 2% 0,25W
3289	4822 116 52244	15K 5% 0,5W
3290	4822 100 11426	RH0634CS2R06A
3291	4822 050 22202	2K20 1% 0,6W
3292	4822 050 27501	750R00 1% 0,6W
3293	4822 050 23902	3K90 1% 0,6W
3294	4822 051 10182	1K80 2% 0,25W
3295	4822 051 10102	1K00 2% 0,25W
3296	4822 051 10102	1K00 2% 0,25W
3297	4822 050 21801	180R00 1% 0,6W
3298	4822 052 10569	56R00 5% 0,33W
3300	4822 050 23001	300R00 1% 0,6W
3301	4822 051 10471	470R00 2% 0,25W
3302	4822 052 11151	150R00 5% 0,5W
3303	4822 051 10103	10K00 2% 0,25W
3306	4822 050 25102	5K10 1% 0,6W
3308	4822 051 10331	330R00 2% 0,25W
3309	4822 051 10331	330R00 2% 0,25W
3311	4822 116 52217	270E 5% 0,5W
3312	4822 116 52186	22E 5% 0,5W
3313	4822 051 10102	1K00 2% 0,25W
3314	4822 051 10151	150R00 2% 0,25W
3315	4822 051 10472	4K70 2% 0,25W
3316	4822 050 21301	130R00 1% 0,6W
3317	4822 051 10151	150R00 2% 0,25W
3318	4822 051 10152	1K50 2% 0,25W
3319	4822 050 21301	130R00 1% 0,6W
3320	4822 051 10472	4K70 2% 0,25W
3321	4822 051 10151	150R00 2% 0,25W
3322	4822 051 10151	150R00 2% 0,25W

3323	4822 051 10561	560R00 2% 0,25W
3324	4822 050 21501	150R00 1% 0,6W
3325	4822 051 10102	1K00 2% 0,25W
3326	4822 050 23305	3M30 1% 0,6W
3327	4822 050 22204	220K00 1% 0,6W
3330	4822 052 10478	4R70 5% 0,33W
3331	4822 052 10478	4R70 5% 0,33W
3332	4822 052 10478	4R70 5% 0,33W
3333	4822 050 21502	1K50 1% 0,6W
3334	4822 050 27501	750R00 1% 0,6W
3335	4822 051 10682	6K80 2% 0,25W
3336	4822 051 10682	6K80 2% 0,25W
3337	4822 051 10101	100R00 2% 0,25W
3338	4822 050 21502	1K50 1% 0,6W
3339	4822 050 26802	6K80 1% 0,6W
3340	4822 050 26802	6K80 1% 0,6W
3341	4822 050 26801	680R00 1% 0,6W
3342	4822 051 10101	100R00 2% 0,25W
3343	4822 050 15602	5K60 1% 0,4W
3344	4822 050 17502	7K50 1% 0,4W
3346	4822 051 10101	100R00 2% 0,25W
3347	4822 050 21003	10K00 1% 0,6W
3348	4822 051 10331	330R00 2% 0,25W
3349	4822 051 10681	680R00 2% 0,25W
3350	4822 050 28201	820R00 1% 0,6W
3351	4822 052 10109	10R00 5% 0,33W
3352	4822 051 20222	2K20 5% 0,1W
3353	4822 051 10331	330R00 2% 0,25W
3354	4822 100 11426	RH0634CS2R06A
3355	4822 051 10471	470R00 2% 0,25W
3356	4822 050 16809	68R00 1% 0,4W
3360	4822 050 16809	68R00 1% 0,4W
3361	4822 050 27509	75R00 1% 0,6W
3363	4822 051 10101	100R00 2% 0,25W
3364	4822 051 10471	470R00 2% 0,25W
3365	4822 051 10101	100R00 2% 0,25W
3370	4822 051 20222	2K20 5% 0,1W
3371	4822 051 10331	330R00 2% 0,25W
3372	4822 051 10331	330R00 2% 0,25W
3401	4822 051 10101	100R00 2% 0,25W
3402	4822 051 10221	220R00 2% 0,25W
3404	4822 051 10331	330R00 2% 0,25W
3405	4822 051 10122	1K20 2% 0,25W
3406	4822 051 10682	6K80 2% 0,25W
3407	4822 051 10122	1K20 2% 0,25W
3408	4822 051 10332	3K30 2% 0,25W
3409	4822 050 23909	39R00 1% 0,6W
3411	4822 050 27509	75R00 1% 0,6W
3412	4822 051 10681	680R00 2% 0,25W
3413	4822 051 10152	1K50 2% 0,25W
3420	4822 051 10102	1K00 2% 0,25W
3421	4822 051 10102	1K00 2% 0,25W
3422	4822 051 10122	1K20 2% 0,25W
3423	4822 051 10472	4K70 2% 0,25W
3424	4822 051 10682	6K80 2% 0,25W
3430	4822 051 10153	15K00 2% 0,25W
3431	4822 051 10102	1K00 2% 0,25W
3432	4822 051 10102	1K00 2% 0,25W
3433	4822 051 10473	47K00 2% 0,25W
3434	4822 051 10104	100K00 2% 0,25W
3435	4822 051 10104	100K00 2% 0,25W
3440	4822 051 10102	1K00 2% 0,25W
3441	4822 051 10102	1K00 2% 0,25W
3442	4822 051 10272	2K70 2% 0,25W
3443	4822 051 10472	4K70 2% 0,25W
3444	4822 051 10682	6K80 2% 0,25W

PARTSLIST MAINPANEL (continued)

3445	4822 051 10182	1K80 2% 0,25W
3446	4822 051 10472	4K70 2% 0,25W
3447	4822 051 10104	100K00 2% 0,25W
3450	4822 051 10182	1K80 2% 0,25W
3451	4822 051 10472	4K70 2% 0,25W
3452	4822 050 21203	12K00 1% 0,6W
3453	4822 051 10104	100K00 2% 0,25W
3454	4822 050 21504	150K00 1% 0,6W
3455	4822 050 21504	150K00 1% 0,6W
3456	4822 051 10153	15K00 2% 0,25W
3457	4822 051 10223	22K00 2% 0,25W
3458	4822 051 10104	100K00 2% 0,25W
3459	4822 051 10153	15K00 2% 0,25W
3460	4822 051 10223	22K00 2% 0,25W
3461	4822 116 52264	27K 5% 0,5W
3462	4822 051 10682	6K80 2% 0,25W
3463	4822 051 10122	1K20 2% 0,25W
3464	4822 051 10471	470R00 2% 0,25W
3465	4822 050 21002	1K00 1% 0,6W
3466	4822 051 10221	220R00 2% 0,25W
3467	4822 050 23901	390R00 1% 0,6W
3468	4822 051 20222	2K20 5% 0,1W
3470	4822 051 10682	6K80 2% 0,25W
3471	4822 050 21804	180K00 1% 0,6W
3472	4822 050 21804	180K00 1% 0,6W
3473	4822 050 22202	2K20 1% 0,6W
3474	4822 050 22203	22K00 1% 0,6W
3475	4822 051 20222	2K20 5% 0,1W
3476	4822 051 10223	22K00 2% 0,25W
3477	4822 051 10682	6K80 2% 0,25W
3478	4822 050 23902	3K90 1% 0,6W
3479	4822 050 21003	10K00 1% 0,6W
3480	4822 050 21003	10K00 1% 0,6W
3481	4822 051 10332	3K30 2% 0,25W
3482	4822 051 10102	1K00 2% 0,25W
3483	4822 051 10561	560R00 2% 0,25W
3484	4822 051 10102	1K00 2% 0,25W
3485	4822 050 24702	4K70 1% 0,6W
3486	4822 051 10682	6K80 2% 0,25W
3487	4822 051 10122	1K20 2% 0,25W
3488	4822 051 10681	680R00 2% 0,25W
3489	4822 050 23301	330R00 1% 0,6W
3490	4822 050 23301	330R00 1% 0,6W
3491	4822 051 10682	6K80 2% 0,25W
3492	4822 051 10101	100R00 2% 0,25W
3493	4822 051 10471	470R00 2% 0,25W
3494	4822 116 52217	270E 5% 0,5W
3495	4822 051 10103	10K00 2% 0,25W
3497	4822 051 10102	1K00 2% 0,25W
3500	4822 051 10223	22K00 2% 0,25W
3501	4822 051 10102	1K00 2% 0,25W
3502	4822 050 22205	2M20 1% 0,6W
3503	4822 050 22202	2K20 1% 0,6W
3504	4822 051 10102	1K00 2% 0,25W
3505	4822 050 21204	120K00 1% 0,6W
3508	4822 116 52234	100K 5% 0,5W
3509	4822 050 21003	10K00 1% 0,6W
3510	4822 050 22204	220K00 1% 0,6W
3511	4822 116 52235	1M 5% 0,5W
3512	4822 116 52235	1M 5% 0,5W
3513	4822 051 10472	4K70 2% 0,25W
3514	4822 051 10153	15K00 2% 0,25W
3515	4822 051 10104	100K00 2% 0,25W
3516	4822 051 10104	100K00 2% 0,25W
3517	4822 051 10102	1K00 2% 0,25W
3518	4822 050 21804	180K00 1% 0,6W

3519	4822 051 10104	100K00 2% 0,25W
3520	4822 051 10473	47K00 2% 0,25W
3521	4822 050 26803	68K00 1% 0,6W
3522	4822 051 10472	4K70 2% 0,25W
3523	4822 050 28203	82K00 1% 0,6W
3524	4822 050 23904	390K00 1% 0,6W
3525	4822 050 25603	56K00 1% 0,6W
3533	4822 052 10478	4R70 5% 0,33W
3540	4822 051 10102	1K00 2% 0,25W
3541	4822 050 24705	4M70 1% 0,6W
3542	4822 051 10561	560R00 2% 0,25W
3543	4822 050 22702	2K70 1% 0,6W
3544	4822 051 10122	1K20 2% 0,25W
3545	4822 051 10122	1K20 2% 0,25W
3546	4822 050 12402	2K40 1% 0,4W
3547	4822 051 10122	1K20 2% 0,25W
3548	4822 051 10223	22K00 2% 0,25W
3550	4822 051 20222	2K20 5% 0,1W
3551	4822 052 10109	10R00 5% 0,33W
3552	4822 052 10109	10R00 5% 0,33W
3553	4822 051 10223	22K00 2% 0,25W
3555	4822 051 10122	1K20 2% 0,25W
3556	4822 051 10122	1K20 2% 0,25W
3557	4822 050 12402	2K40 1% 0,4W
3558	4822 051 10122	1K20 2% 0,25W
3559	4822 050 22702	2K70 1% 0,6W
3560	4822 051 10561	560R00 2% 0,25W
3561	4822 051 10102	1K00 2% 0,25W
3562	4822 050 24705	4M70 1% 0,6W
3565	4822 051 10473	47K00 2% 0,25W
3566	4822 051 10473	47K00 2% 0,25W
3567	4822 050 22204	220K00 1% 0,6W
3568	4822 050 22204	220K00 1% 0,6W
3570	4822 050 21002	1K00 1% 0,6W
3571	4822 051 10102	R1206 1/8W 1K0 PM5
3572	4822 051 20222	2K20 5% 0,1W
3573	4822 051 10331	R1206 1/8W330R PM5
3575	4822 050 21002	1K00 1% 0,6W
3576	4822 051 10102	R1206 1/8W 1K0 PM5
3577	4822 051 20222	2K20 5% 0,1W
3578	4822 051 20222	R1206 1/8W 2K2 PM5
3590	4822 050 21003	10K00 1% 0,6W
3591	4822 050 21002	1K00 1% 0,6W
3592	4822 050 21002	1K00 1% 0,6W
3600	4822 051 10471	470R00 2% 0,25W
3601	4822 051 10471	470R00 2% 0,25W
3603	4822 050 13303	33K00 1% 0,4W
3604	4822 050 22704	270K00 1% 0,6W
3605	4822 051 10223	22K00 2% 0,25W
3606	4822 051 10471	470R00 2% 0,25W
3607	4822 116 52224	470E 5% 0,5W
3608	4822 051 10471	470R00 2% 0,25W
3609	4822 116 52234	100K 5% 0,5W
3610	4822 051 10182	1K80 2% 0,25W
3611	4822 116 52234	100K 5% 0,5W
3612	4822 051 10182	1K80 2% 0,25W
3614	4822 050 26803	68K00 1% 0,6W
3615	4822 050 21002	1K00 1% 0,6W
3616	4822 052 10109	10R00 5% 0,33W
3620	4822 051 10104	100K00 2% 0,25W
3621	4822 050 21002	1K00 1% 0,6W
3622	4822 050 21003	10K00 1% 0,6W
3623	4822 050 13303	33K00 1% 0,4W
3624	4822 116 52234	100K 5% 0,5W
3625	4822 050 24703	47K00 1% 0,6W
3626	4822 050 15602	5K60 1% 0,4W

PARTSLIST MAINPANEL (continued)

3627	4822 051 10472	4K70 2% 0,25W
3628	4822 050 21003	10K00 1% 0,6W
3630	4822 051 10472	4K70 2% 0,25W
3635	4822 051 10103	10K00 2% 0,25W
3636	4822 050 24702	4K70 1% 0,6W
3637	4822 050 24703	47K00 1% 0,6W
3640	4822 050 21002	1K00 1% 0,6W
3641	4822 051 10102	1K00 2% 0,25W
3700	4822 050 21501	150R00 1% 0,6W
3701	4822 050 21003	10K00 1% 0,6W
3702	4822 050 21003	10K00 1% 0,6W
3703	4822 050 21003	10K00 1% 0,6W
3705	4822 050 24702	4K70 1% 0,6W
3706	4822 050 21003	10K00 1% 0,6W
3707	4822 050 26803	68K00 1% 0,6W
3708	4822 050 21002	1K00 1% 0,6W
3709	4822 051 10103	10K00 2% 0,25W
3712	4822 050 21003	10K00 1% 0,6W
3713	4822 050 21003	10K00 1% 0,6W
3714	4822 050 21003	10K00 1% 0,6W
3715	4822 050 21003	10K00 1% 0,6W
3716	4822 050 22204	220K00 1% 0,6W
3720	4822 051 10472	4K70 2% 0,25W
3721	4822 051 10472	4K70 2% 0,25W
3722	4822 051 10472	4K70 2% 0,25W
3723	4822 051 10472	4K70 2% 0,25W
3724	4822 051 10103	10K00 2% 0,25W
3725	4822 051 10182	1K80 2% 0,25W
3726	4822 051 10472	4K70 2% 0,25W
3727	4822 050 24702	4K70 1% 0,6W
3728	4822 050 24702	4K70 1% 0,6W
3730	4822 116 52234	100K 5% 0,5W
3731	4822 051 10103	10K00 2% 0,25W
3742	4822 050 22202	2K20 1% 0,6W
3753	4822 050 22203	22K00 1% 0,6W
3754	4822 050 22203	22K00 1% 0,6W
3760	4822 051 10103	10K00 2% 0,25W
3761	4822 051 10182	1K80 2% 0,25W

5102	4822 157 63322	
5110	4822 152 20677	
5111	4822 320 40252	
5114	4822 152 20677	
5115	4822 157 63321	
5130	4822 157 62923	COIL 7.5 UH
5131	4822 157 60123	FXDINDA02 6MUH8 PM10
5133	4822 157 62552	FXDINDA02 2MUH2 PM20
5135	4822 242 73842	EMI FILTER DSS306 91
5136	4822 242 73842	EMI FILTER DSS306 91
5200	4822 242 73842	FM12223011
5201	4822 242 73842	FM12223011
5202	4822 242 73842	FM12223011
5210	4822 157 63318	
5211	4822 157 63319	
5216	4822 157 60123	
5225	4822 157 53267	SLP102535C3C-4223-01
5233	4822 157 52983	2N2
5235	4822 157 52983	2N2
5240	4822 157 53906	47UH
5249	4822 157 53303	
5260	4822 157 52983	2N2
5265	4822 242 73902	JX15001261
5267	4822 242 73903	JX17001261
5269	4822 157 53303	

5272	4822 157 53303	
5306	4822 152 20677	
5308	4822 242 73555	5,900 000 MC
5328	4822 242 73842	FM12223011
5337	4822 152 20678	33UH10%
5338	4822 157 63316	
5342	4822 157 51503	
5343	4822 157 52983	2N2
5345	4822 157 52983	2N2
5347	4822 157 53001	27MUH10%
5360	4822 157 63317	
5400	4822 157 62901	LC13950011
5401	4822 242 73892	1.7MHZ
5440	4822 242 73977	
5506	4822 242 73842	FM12223011
5510	4822 242 73586	8.467 200 MC
5530	4822 242 73842	FM12223011
5532	4822 242 73842	FM12223011
5640	4822 242 73842	FM12223011
5641	4822 242 73842	FM12223011
5708	4822 157 63315	

6120	4822 130 31253	BZX79-C2V4 (UAW)
6126	4822 130 34048	BZX75-C2V8
6200	4822 130 30621	1N4148 (UAW)
6201	4822 130 34167	BZX79-C6V2 (UAW)
6225	4822 130 30621	1N4148 (UAW)
6245	4822 130 30862	BZX79-C9V1 (UAW)
6260	4822 130 30621	1N4148 (UAW)
6285	4822 130 30621	1N4148 (UAW)
6286	4822 130 30621	1N4148 (UAW)
6292	4822 130 34174	BZX79-C4V7 (UAW)
6293	4822 130 34174	BZX79-C4V7 (UAW)
6295	4822 130 30621	1N4148 (UAW)
6297	4822 130 33668	BZX55-B9V1
6300	4822 130 30621	1N4148 (UAW)
6301	4822 130 33668	BZX55-B9V1
6317	4822 130 33668	BZX55-B9V1
6350	5322 130 34834	BZX79-C3V6 (UAW)
6400	4822 130 34167	BZX79-C6V2 (UAW)
6401	4822 130 30621	1N4148 (UAW)
6402	4822 130 30621	1N4148 (UAW)
6501	4822 130 30621	1N4148 (UAW)
6511	4822 130 31129	BB212
6513	4822 130 30621	1N4148 (UAW)
6517	4822 130 30621	1N4148 (UAW)
6518	4822 130 34167	BZX79-C6V2 (UAW)
6604	4822 130 30621	1N4148 (UAW)
6605	4822 130 30621	1N4148 (UAW)
6608	4822 130 30621	1N4148 (UAW)
6609	4822 130 30621	1N4148 (UAW)
6614	4822 130 30621	1N4148 (UAW)
6615	4822 130 30621	1N4148 (UAW)
6620	4822 130 30621	1N4148 (UAW)
6621	4822 130 30621	1N4148 (UAW)
6622	4822 130 30621	1N4148 (UAW)
6626	4822 130 30621	1N4148 (UAW)

7100	5322 130 41982	BC848B (UAW)
7109	5322 130 41982	BC848B (UAW)
7115	5322 130 41982	BC848B (UAW)
7121	5322 130 41982	BC848B (UAW)

PARTSLIST MAINPANEL (continued)

7124	5322 130 41982	BC848B (UAW)
7125	5322 130 41982	BC848B (UAW)
7126	5322 130 41982	BC848B (UAW)
7134	4822 130 40937	BC548B (UAW)
7135	5322 130 41982	BC848B (UAW)
7200	5322 130 41982	BC848B (UAW)
7210	5322 130 41983	BC858B (UAW)
7211	5322 130 41982	BC848B (UAW)
7227	5322 130 41983	BC858B (UAW)
7235	5322 130 41983	BC858B (UAW)
7243	5322 130 41982	BC848B (UAW)
7262	5322 130 41983	BC858B (UAW)
7270	5322 130 41982	BC848B (UAW)
7272	5322 130 41982	BC848B (UAW)
7273	5322 130 41982	BC848B (UAW)
7300	5322 130 41982	BC848B (UAW)
7303	5322 130 41983	BC858B (UAW)
7304	5322 130 41982	BC848B (UAW)
7305	5322 130 41983	BC858B (UAW)
7306	5322 130 41982	BC848B (UAW)
7296	4822 130 42131	BF550
7314	4822 130 42353	BFS19
7316	4822 130 42353	BFS19
7317	4822 130 42131	BF550
7318	4822 130 42353	BFS19
7319	4822 130 42353	BFS19
7321	4822 130 42131	BF550
7333	5322 130 41983	BC858B (UAW)
7335	5322 130 41982	BC848B (UAW)
7338	5322 130 41983	BC858B (UAW)
7339	5322 130 41982	BC848B (UAW)
7347	5322 130 41982	BC848B (UAW)
7348	5322 130 41982	BC848B (UAW)
7353	5322 130 41982	BC848B (UAW)
7354	5322 130 41983	BC858B (UAW)
7355	5322 130 41982	BC848B (UAW)
7364	5322 130 41982	BC848B (UAW)
7365	5322 130 41983	BC858B (UAW)
7400	5322 130 41982	BC848B (UAW)
7401	5322 130 41982	BC848B (UAW)
7402	5322 130 41982	BC848B (UAW)
7403	5322 130 41982	BC848B (UAW)
7404	5322 130 41982	BC848B (UAW)
7405	5322 130 41982	BC848B (UAW)
7407	5322 130 41982	BC848B (UAW)
7408	5322 130 41982	BC848B (UAW)
7409	5322 130 41982	BC848B (UAW)
7410	5322 130 41982	BC848B (UAW)
7507	5322 130 41982	BC848B (UAW)
7519	5322 130 41982	BC848B (UAW)
7520	5322 130 41982	BC848B (UAW)
7540	5322 130 41982	BC848B (UAW)
7561	5322 130 41982	BC848B (UAW)
7572	4822 130 42675	BC818 (UAW)
7573	4822 130 42675	SM TRANS BC818
7573	5322 130 41982	SM TRANS BC848B
7577	4822 130 42675	BC818 (UAW)
7591	5322 130 41983	BC858B (UAW)
7635	5322 130 41982	BC848B (UAW)
7705	5322 130 41982	BC848B (UAW)
7724	5322 130 41982	BC848B (UAW)
7730	5322 130 41982	BC848B (UAW)
7760	5322 130 41982	BC848B (UAW)

7112	5322 209 14481	HEF4053BT
7212	4822 209 30216	TEA7650M/V4
7250	4822 209 63465	HC10002750
7260	4822 209 30089	UPD6451CX-001
7261	4822 209 60753	TBC M-D
7271	4822 209 63703	TBC-MA3
7274	4822 209 71469	MC1458D
7286	4822 209 71469	MC1458D
7311	4822 209 30091	CXL1009P
7420	4822 209 63698	HA12127ANT
7421	4822 209 63716	NJM2233BD
7500	4822 209 62112	M50423FP
7506	4822 209 70422	MN4264-15
7524	4822 209 83163	LM833N
7534	4822 209 73236	TDA1543/N2
7537	5322 209 14481	HEF4053BT
7543	4822 209 30095	LM833D
7547	4822 209 30095	LM833D
7560	5322 209 14481	HEF4053BT
7567	4822 209 30095	LM833D
7600	4822 209 60626	DSC-M2
7615	4822 209 70691	MC34004P
7701	4822 209 30088	MC68HC11G7/LDP400

PF06 FRONT PCB

		
CF01	4822 124 23559	10UF/ 50V
CF03	4822 124 23559	10UF/ 50V
		
DF01	4822 130 80326	LT3D8B RED 3O
DF02	4822 130 80326	LT3D8B RED 3O
DF03	4822 130 33305	1SS176.MA165.1SS254
DF04	4822 130 33305	1SS176.MA165.1SS254
		
IC99	4822 209 63457	FRONT CPU TMP47C670N
LF01	4822 157 62898	LAL02TA181J 180UH
LF02	4822 157 62898	LAL02TA181J 180UH
		
QF01	4822 130 60839	2SC2458 Y,GR
QF02	4822 130 42593	DTA124ES (TP)
QF03	4822 130 60839	2SA1048 Y,GR
Various		
SF01	4822 276 12455	TACT SWICH ALPS-SKHV
SF02	4822 276 12455	TACT SWICH ALPS-SKHV
SF03	4822 276 12455	TACT SWICH ALPS-SKHV
SF04	4822 276 12455	TACT SWICH ALPS-SKHV
SF05	4822 276 12455	TACT SWICH ALPS-SKHV
SF06	4822 276 12455	TACT SWICH ALPS-SKHV
SF07	4822 276 12455	TACT SWICH ALPS-SKHV
SF08	4822 276 12455	TACT SWICH ALPS-SKHV
SF09	4822 276 12455	TACT SWICH ALPS-SKHV
SF10	4822 276 12455	TACT SWICH ALPS-SKHV
SF11	4822 276 12455	TACT SWICH ALPS-SKHV
SF12	4822 276 12455	TACT SWICH ALPS-SKHV
SF13	4822 276 12455	TACT SWICH ALPS-SKHV
SF14	4822 276 12455	TACT SWICH ALPS-SKHV
SF15	4822 276 12455	TACT SWICH ALPS-SKHV
SF16	4822 276 12455	TACT SWICH ALPS-SKHV
SF17	4822 276 12455	TACT SWICH ALPS-SKHV
SF18	4822 276 12455	TACT SWICH ALPS-SKHV
SF19	4822 276 12455	TACT SWICH ALPS-SKHV
SF20	4822 276 12455	TACT SWICH ALPS-SKHV
SF21	4822 276 12455	TACT SWICH ALPS-SKHV
SF22	4822 276 12455	TACT SWICH ALPS-SKHV
SF23	4822 276 12455	TACT SWICH ALPS-SKHV
SF24	4822 276 12455	TACT SWICH ALPS-SKHV
SF25	4822 276 12455	TACT SWICH ALPS-SKHV
SF26	4822 276 12455	TACT SWICH ALPS-SKHV
SF27	4822 276 12455	TACT SWICH ALPS-SKHV
SF28	4822 276 12455	TACT SWICH ALPS-SKHV
VF01	4822 130 90942	FIP8JM6 (LD)
XF01	4822 242 73893	6MHZ CERAMIC RESONAT
ZF01	4822 130 81254	GP1U520X 36.0KHZ IR-

P906 POWER SUPPLY PCB

C901	4822 122 33276	DE7150 F 103M 400V
C902	4822 122 33276	DE7150 F 103M 400V
C915	4822 124 22239	3300UF 25V RA2 TYPE
C916	4822 124 22239	3300UF 25V RA2 TYPE
C934	4822 124 23559	10UF/ 50V
C935	4822 124 23559	10UF/ 50V

DD01	4822 130 33305	1SS176,MA165,1SS254
DD02	4822 130 33305	1SS176,MA165,1SS254
DD03	4822 130 33305	1SS176,MA1650S254
DD04	4822 130 33305	1SS176,MA165,1SS254
DD05	4822 130 33305	1SS176,MA165,1SS254
DD06	4822 130 33305	1SS176,MA165,1SS254
DD07	4822 130 82422	EX16
DD08	4822 130 82422	EK16 1.5A/60V S.B.D
DD09	4822 130 82422	EK16 1.5A/60V S.B.D
DD10	4822 130 82422	EK16
DD52	4822 130 33305	ISS176MA165 ISS254
D901	4822 130 82425	RBA402 4A/200V BRIDG
D902	4822 130 82422	EK 1.5A/60V S.B.D
D903	4822 130 82422	EK 1.5A/60V S.B.D
D904	4822 130 82421	1D3 1A/200V
D905	4822 130 82421	1D3 1A/200V
D906	4822 130 82421	1D3 1A/200V
D907	4822 130 82421	1D3 1A/200V
D912	4822 130 82611	Diode RB152
D913	4822 130 82421	1D3 1A/200V
D914	4822 130 82421	1D3 1A/200V
D915	4822 130 82421	1D3 1A/200V
D916	4822 130 82421	1D3 1A/200V
D919	4822 130 33305	1SS176,MA165,1SS254
D920	4822 130 33305	1SS176,MA165,1SS254
D922	4822 130 33305	1SS176,MA165,1SS254
D923	4822 130 33305	1SS176,MA165,1SS254
D924	4822 130 33305	1SS176,MA165,1SS254
D925	4822 130 33305	1SS176,MA165,1SS254
D926	4822 130 33305	1SS176,MA165,1SS254
D927	4822 130 33305	1SS176,MA165,1SS254
D928	4822 130 33305	1SS176,MA165,1SS254
D929	4822 130 82421	1D3 1A/200V
D930	4822 130 82421	1D3 1A/200V
D931	4822 130 33305	1SS176,MA165,1SS254
D933	4822 130 82421	1D3 1A/200V

Fuses

F901	4822 253 30027	3.15 A 250V BS LISTE
F902	4822 253 30027	3.15 A 250V BS LISTE
F903	4822 253 30206	2 A 250V BS LISTED

IC86	4822 209 71902	NJM 78L12A
IC87	4822 209 73524	NJM 79L12A

LD01	4822 157 62926	S0627 2.6MH 1A
LD02	4822 157 62926	S0627 2.6MH 1A
LD03	4822 526 10543	Ferrite bead.
LD04	4822 526 10543	Ferrite bead.

QD01	4822 130 60886	2SC1923 Y
QD02	4822 130 61438	2SA1005 L OR K
QD03	4822 130 60886	2SC1923 Y
QD04	4822 130 61438	2SA1005 L OR K
QD05	4822 130 60107	2SA1048 Y,GR
QD06	4822 130 60839	2SC2458 Y,GR
QD07	4822 130 60107	2SA1048 Y,GR
QD08	4822 130 60839	2SC2458 Y,GR
QD09	4822 130 62548	2SB1185 E OR F
QD10	4822 130 62549	2SD1762 E OR F
QD11	4822 130 62548	2SB1185 E OR F
QD12	4822 130 62549	2SD1762 E OR F
Q901	4822 130 61442	2SD1913 R,S
Q902	4822 130 61359	2SB1274 R,S
Q903	4822 130 60839	2SC2458 Y,GR
Q904	4822 130 60839	2SA1048 Y,GR
Q905	4822 130 61442	2SD1913 R,S
Q906	4822 130 61359	2SB1274 R,S
Q907	4822 130 61442	2SD1913 R,S
Q908	4822 130 61179	2SD2037 E,F
Q909	4822 130 60839	2SA1048 Y,GR
Q911	4822 130 60839	2SC2458 Y,GR
Q912	4822 130 60839	2SC2458 Y,GR
Q913	4822 130 61417	2SB1240 TV-2 PNP Q,R
Q914	4822 130 61417	2SB1240 Q,R
Q915	4822 130 60839	2SC2458 Y,GR
Q916	4822 130 42683	DTC124ES (TP)
Q917	4822 130 61179	2SD2037 E,F

RD15	4822 116 60295	47 OHM J 1/4W
RD16	4822 116 60295	47 OHM J 1/4W
RD17	4822 116 60295	47 OHM J 1/4W
RD18	4822 116 60295	47 OHM J 1/4W
R902	4822 116 82821	1.5 OHM J 1/2W
R904	4822 111 30006	47 OHM +-5% 1/4W
R905	4822 111 30006	47 OHM +-5% 1/4W
R934	4822 116 60307	1 OHM J 1/4W
R935	4822 116 60307	1 OHM J 1/4W
R936	4822 115 90166	10Ω 1/4W
R937	4822 052 10478	4R7
R938	4822 116 60307	1Ω 1/4W
R939	4822 116 60307	1Ω 1/4W

Z903	4822 130 33759	4.7V ZENER EQUIVALEN
Z905	4822 130 81729	MTZJ33D
Z906	4822 130 80318	6.8V ZENER EQUIVALEN
Z907	4822 130 80316	3.6V ZENER EQUIVALEN

Various

L902	4822 280 20467	RELAY UB-5MBU
F901	4822 252 26288	thermal fuse MF-R135
F902	4822 252 26288	thermal fuse MF-R135

P106 SERVO PCB

C131	4822 124 21736	1UF/50V
D101	4822 130 33305	1SS176,MA165,1SS254
D102	4822 130 33305	1SS176,MA165,1SS254
D104	4822 130 33305	1SS176,MA165, 1SS25
IC20	4822 290 60997	HA11529NT (SERVO)
IC21	4822 209 61187	BA15218
IC22	4822 209 61187	BA15218
IC23	4822 209 61187	BA15218
IC24	4822 209 61187	BA15218
IC25	4822 209 61379	CXA1081Q
IC26	4822 209 83839	UPD4053BC
IC27	4822 209 83654	NJM4556D
IC28	4822 209 83654	NJM4556D
IC29	4822 209 61187	BA15218
Q101	4822 130 42683	DTC124ES(TP)
Q102	4822 130 42683	DTC124ES (TP)
Q103	4822 130 42683	DTC124ES (TP)
Q104	4822 130 42593	DTA124ES (TP)
Q105	4822 130 60839	2SC2458 Y,GR
Q106	4822 130 42683	DTC124ES (TP)
Q108	4822 130 61417	2SB1240 Q,R
Q110	4822 130 42683	DTC124ES (TP)
Q111	4822 130 42683	DTC124ES(TP)
Q201	4822 130 62547	STA451C
Q202	4822 130 62547	STA451C
Q281	4822 130 60839	2SC2458 Y,GR
Q282	4822 130 60839	2SC2458 Y,GR
R123	4822 100 11373	4.7KOHM RH0634CS3R T
R124	4822 100 11373	4.7KOHM RH0634CS3R T
R133	4822 100 11351	10K OHM RH634CJ4R TY
R152	4822 116 60422	2.2 OHM +-5% 2W
R159	4822 116 60295	47 OHM +-5% 1/4W
R174	4822 100 11352	22KOHM RH0634CJ4R TY
R178	4822 100 11386	1K OHM RH634CJ4R TYP
R196	4822 116 60422	2.2 OHM +-5% 2W
R199	4822 116 60295	47 OHM +-5% 1/4W
R226	4822 116 60295	47 OHM +=5% 1/4W
R229	4822 116 60421	2.2 OHM +-5% 1W
R255	4822 100 11471	100KOHM RH0634C15R T
R273	4822 116 60295	47 OHM +-5% 1/4W
R276	4822 116 60421	2.2 OHM +-5% 1W
R286	4822 100 11386	RH0634CS2R TYPE 1K O
R231,R232	4822 116 83036	27Ω 1/4W
R235,R236	4822 116 83036	27Ω 1/4W
R233,R234	4822 116 60307	1Ω 1/4W
R237,R238	4822 116 60307	1Ω 1/4W
Z101	4822 130 80316	3.6V ZENER

SERVICE TOOLS

TEST STAND	4822 395 90896
TURNTABLE ADJUST.	4822 395 80389
3 P EXT. CABLE	4822 321 61071
11P EXT. CABLE	4822 321 61072
12P EXT. CABLE	4822 321 61073
24P FLAT CABLE	4822 321 61124
VIDEO TEST DISC	4822 397 30207
CD TEST DISC 5A	4822 397 30096
1,5 mm HEX Wrench	4822 395 50081